

TREATMENT PLANT  
PERFORMANCE EVALUATION REPORT  
NEASE CHEMICAL SITE  
SALEM, OHIO

Submitted to:

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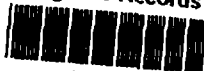
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February 1994

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Project No.: 933-6158

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February 11, 1994

Project No.: 933-6158

Ruetgers-Nease Corporation  
201 Struble Road  
State College, PA 16801

Attn: Mr. Ralph E. Pearce, P.E.

RE: TREATMENT PLANT PERFORMANCE EVALUATION REPORT  
NEASE CHEMICAL SITE, SALEM, OHIO

Gentlemen:

Golder Associates Inc. is pleased to submit the enclosed Treatment Plant Performance Evaluation Report (TPPER) for the Nease Chemical Site in Salem, Ohio. This TPPER is a factual presentation of the results of the performance evaluation conducted from December 1 through December 8, 1993.

The TPPER has addressed all the elements as described in Section 10 of the Work Plan with the exception of a discussion of the treatment plant's attainment of discharge criteria. As discussed in the February 9, 1994 meeting with the Agencies, the final discharge criteria will be established during on-going discussions with the State and Federal Agencies.

If you have any questions please do not hesitate to call us.

Very truly yours,

GOLDER ASSOCIATES INC.

A handwritten signature in black ink, appearing to read "Geoffrey R. Forrest", is written over a circular stamp or seal.

Geoffrey R. Forrest, C.P.Eng.  
Associate

GRF:bjt

Enclosure

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## 1.0 INTRODUCTION

### 1.1 Background

On behalf of Ruetgers-Nease Corporation (RNC), Golder Associates Inc. (Golder) submitted Revision #1 of the Treatment Plant Performance Evaluation Work Plan (TPPEWP) to the United States Environmental Protection Agency (USEPA) and the Ohio Environmental Protection Agency (Ohio EPA) on November 23, 1993. The TPPEWP was prepared in accordance with the requirements of Paragraph 4c. of the November 17, 1993 Administrative Order by Consent (Removal AOC) for the Nease Chemical facility located in Salem, Ohio (Site). The Agencies provided interim approval of the TPPEWP in a letter dated November 18, 1993, and final approval on January 3, 1994. This report describes the implementation of the TPPEWP, presents results of analyses conducted on samples collected during the Study, and identifies performance and operational concerns with the existing treatment plant.

The existing on-site treatment plant is a turnkey integrated remediation system (Easypurge Skid-Mounted System) constructed by NEPCCO. It was designed primarily for the removal of suspended solids, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and mirex, photomirex and kepone (MPK). The following unit processes are contained within the treatment system: physical filtering (canister bag filters); air stripping (low profile tray aeration); and, liquid- and vapor-phase granular activated carbon (GAC) units. A series of monitoring points (sample taps) are located throughout the system before and after each unit process. Figure 1 presents a schematic diagram of the treatment system unit processes, monitoring points, and other features.

The treatment system is hydraulically designed to operate at flow rates between 5 and 25 gallons per minute (gpm). Influent to the treatment plant consists of groundwater, leachate, and collected surface water runoff from the Site which is

pumped from three source areas: leachate collection system No. 1 (LCS-1); leachate collection system No. 2 (LCS-2); and, sedimentation pond 1 (POND1). The influent is pumped from the sources to a surge tank where it is further pumped through bag filter assembly 1, the air stripper, bag filter assembly 2, then through two 1000 lb aqueous phase GAC units in series. Air emissions from the air stripper flow through two 1000 lb vapor phase GAC units prior to discharge to the atmosphere.

A more detailed description of the Site history, influent sources, and existing treatment plant is presented in the TPPEWP which is included in this report for reference as Appendix A.

## 1.2 Study Objectives and Report

This report presents the results of the treatment plant performance evaluation (Study) which was conducted by Golder in accordance with the TPPEWP. The overall purpose of the Study was to assess the effectiveness of the existing treatment plant for removal of both organic and inorganic constituents. Three specific objectives of the Study were identified:

1. To estimate the influent concentration of organic compounds, metals, and conventional parameters under steady state pumping conditions;
2. To assess the removal efficiency (performance) throughout the treatment system for the constituents of concern;
3. To assess the potential of the treatment plant for the removal of metals.

This report focuses on a factual presentation of the Study procedures and results and presents a brief discussion of the data relative to the specific Study objectives. Further, this report discusses additional work performed to assess metals

precipitation (Jar Tests and additional sampling analyses) which was not part of the TPPEWP.

## **2.0 PERFORMANCE EVALUATION DESCRIPTION AND PROCEDURES**

This section presents and discusses the procedures performed during the Study which were conducted at the Site from December 1, 1993 through December 8, 1993. Tables 1 through 3 provide detailed accounting of specific treatment plant operating parameters recorded during the Study. In particular, Table 1 presents a complete record of the eight day sequence of treatment and backwash cycles, sampling events, filter bag change-outs, and also provides a record of the liquid flow volumes and duration of the treatment and backwash events. Table 2 summarizes the treatment plant Study operational data and Table 3 provides a record of the pressure gauge readings during the Study. All treated and backwash water generated during the Study was collected in 5000 gallon capacity tanker trailers for transportation and off-site treatment and disposal.

### **2.1 Chronological Description of Study Procedures**

#### **Day 1 (December 1, 1993)**

The treatment plant operated as expected through the first part of Day 1 and sampling (designated as Day 1 sample in the TPPEWP) was conducted approximately one hour into the test. After approximately 9 hours of operation, the plant automatically shut down when excessive pressure build-up caused a reduction of flow. The excessive pressure was likely due to fouling of the GAC carbon. Further work was deferred until Day 2. Approximately 9,566 gallons were treated over a 9 hour and 38 minute treatment cycle during Day 1.

#### **Day 2 (December 2, 1993)**

It was decided to backwash GAC 1 by reversing the influent and effluent lines and forcing the influent backwards through the GAC unit. Source of the backwash water was the sump of the air stripper. The initial 100 gallons of backwash water were diverted into two 55-gal drums for visual inspection and when agitated, was recorded as being dark grey in color as shown on Figure 2A. Upon stilling, a dark

grey flocculent appeared to form which was followed by settlement and GAC fouling problems being caused by metal precipitation within the GAC unit were suspected. RNC and Golder determined that a series of Jar Tests, conducted at a range of pH values and aeration conditions and the collection of additional samples for metals analysis would provide useful information to assess the metals precipitation/GAC fouling problem. A separate discussion of the Jar Test procedures and additional sample collection is presented in subsection 2.2 of this report.

It was also decided that the performance evaluation test should continue and include periodic backwashing to complete as much as possible of the 5-day (96-hour) test period specified in the TPPEWP. Approximately 6,845 gallons of influent were treated during Day 2 for a duration of 6 hours and 40 minutes, and one backwash cycle of both carbon units was completed. In addition, the second set of bag filters were replaced with smaller mesh size filters in the units between the air stripper and GAC system.

#### **Days 3, 4, and 5 (December 3, 4, 5, 1993)**

The performance evaluation test proceeded during days 3, 4, and 5 without further complication. Approximately 10,550 gallons were pumped on Day 3, 11,266 gallons on Day 4, and 11,861 gallons on Day 5. Backwashing of GAC 1 was performed on Day 3 and Day 5. The first set of bag filters was replaced on Day 4. As per the Work Plan, sampling and testing were performed for field analyses only on these days and no samples were collected for laboratory analysis.

#### **Day 6 (December 6, 1993)**

The Study mid-point group of aqueous samples were collected for laboratory analyses. This set of samples corresponds to the "Day 3" samples specified in the TPPEWP and was collected after approximately 49 hours of treatment. Approximately 26,985 gallons were pumped and treated during the cycles

beginning on Day 6. In addition, two backwash cycles were completed on GAC-1, one backwash cycle was completed on GAC-2, and the second set of bag filters was replaced.

**Day 7 (December 7, 1993)**

Approximately 25,690 gallons were pumped and treated during the cycles beginning on Day 7 and two backwash cycles were completed. Sampling and testing were performed for field analyses only on this day.

**Day 8 (December 8, 1993)**

Approximately 5,651 gallons were pumped and treated during the cycles on Day 8, including one backwash cycle on GAC-1. Prior to the shutdown of the final treatment cycle, the last round of aqueous and vapor phase samples were collected for laboratory analyses. This set of samples corresponds to the "Day 5" samples specified in the TPPEWP and was collected after approximately 100 hours of treatment.

In summary, the total duration of the treatment and backwash cycles during the 8-day Study was over 100 hours. Approximately 105,000 gallons of influent from the three sources was treated at an average flow rate of 18 gallons per minute (gpm). Eight backwash cycles were completed during the Study at an average rate of 420 gallons per backwash for a total of approximately 3,300 gallons. Backwash cycles No. 2 and No. 6 were performed on both GAC units. All other backwash cycles were made on GAC 1. In total, approximately 108,000 gallons of influent were pumped through the system, into tanker trailers and transported (manifested as a RCRA waste code F039) off-site for treatment and disposal at Research Oil Company, Cleveland, Ohio.

Four bag filter changeouts were scheduled in response to a variety of in-situ conditions. These conditions, which led to bag filter changes, included

investigations of the effect of filter pore size (5, 25, and 50 micron bags) and response to decreased flow evidenced by flow meter measurements and pressure build-up.

## **2.2 Description of Jar Tests and Additional Sampling**

The known metals content of the influent sources, fouling of the GAC units, lack of build-up of suspended solids in the bag filters, and the apparent formation of a settleable flocculent in the GAC unit backwash, all pointed to the possibility of metal precipitation within the GAC units. While metals precipitation was considered to be a potential operational concern, the rapid fouling of GAC units after just 9 hours of operation was not anticipated. Therefore, a series of Jar Tests and collection of additional samples for laboratory analyses were conducted. The overall objectives of the Jar Testing and additional sampling were to determine the major components of the precipitate and the effects of pH and aeration on flocculation and settlement times. This information was collected to assist in the assessment of potential future upgrades to the treatment system which would prevent fouling of the GAC units.

Two separate Jar Tests of six 600-ml glass beakers each were conducted using pre-air stripper and post-air stripper influent. The pH of the individual beaker samples were adjusted using 50% NaOH solution and tests were conducted at pH values of approximately 5.0, 6.0, 6.5, 7.0, 7.5, and 8.0. After the pH was adjusted in each of the beakers, the solutions were aerated for one hour using a home aquarium size air pump and diffuser. The time of flocculent formation and settlement was recorded both before and after aeration during each of the two Jar Tests. Figure 3 presents photographs showing the Jar Test beaker samples prior to pH adjustment (3A) and after pH adjustment and aeration (3B).

After the completion of the Jar Tests, the following seven sludge and decant samples were collected for laboratory analyses:

- (1) GAC 1 Backwash 1 Sludge (unfiltered);
- (2) GAC 1 Backwash 1 Decant (unfiltered);
- (3) GAC 1 Backwash 1 Decant (filtered);
- (4) Pre-Air Stripper Jar Test Sludge (unfiltered);
- (5) Pre-Air Stripper Jar Test Decant (filtered);
- (6) Post-Air Stripper Jar Test Sludge (unfiltered); and,
- (7) Post-Air Stripper Jar Test Decant (filtered).

Samples (4) through (7) were formed by compositing the sludge and decant from Jar Test beakers and each sample was analyzed for metals using methodologies presented in the TPPEWP.

### **2.3 Sampling and Analysis Summary**

The sampling, field testing, and laboratory analytical methodologies conducted during the Study were performed in accordance with the description in the TPPEWP Section 6.2 and Tables 6, 7, 8A, and 8B (Appendix A), with the following exceptions:

- Aquatic chronic toxicity testing was not performed due to the operational difficulties experienced during the test. At the point when the first system shutdown occurred, the chronic toxicity testing was canceled because it was unclear whether additional samples needed for the test could be collected. However, after it was decided to continue with the Study, an additional set of acute toxicity tests was performed on the samples collected on December 8, 1993;
- Samples were collected on Day 8 (12/8/93) for NPDES parameter analyses with the exception of oil and grease (total) and total



phenols because the laboratory did not forward sample bottles for these parameters. This deficiency was discovered after the study was completed. Given the operational difficulties with the treatment plant, restarting the test solely for sampling of these parameters was considered unwarranted. Sampling of LCS-1, LCS-2, and Pond 1 will be preformed in February 1994 and will include these parameters;

- Field analysis of iron was not performed during the test due to a malfunction of the field testing equipment. However, the Jar Test procedures and additional samples for metals laboratory analysis provided a more comprehensive assessment of iron in the system and were performed in lieu of the field tests; and,
- Because of the start-up and operational difficulties experienced, field analyses of vapor phase VOC at sample locations A-1 and A-2 were not performed during the initial part of the Study.

### **3.0 DATA EVALUATION**

#### **3.1 VOC, SVOC, Pesticides and Metals Analyses Results**

The following quality assurance/quality control (QA/QC) samples were collected during the Study:

- a field duplicate from the aqueous influent sample location (T-1) and a field duplicate from the vapor phase effluent sample location (A-2);
- a matrix spike/matrix spike duplicate (MS/MSD) from the effluent sample location (SP-5);
- a rinsate blank for filtered metals analysis; and,
- trip blanks accompanying each sample shipment.

In addition, the analytical method for metals analysis required the laboratory to analyze a duplicate and a laboratory control sample (LCS).

Holding times and extraction times, as defined in the TPPEWP, were met for all samples. The QA/QC criteria, as defined by USEPA SW-846 methodologies were, met for MS/MSD percent recovery and relative percent difference (RPD), LCS recoveries, and lab duplicate RPD. Field duplicate RPD was evaluated and found to be acceptable. In addition, the results of the rinsate blank (for filtered metals) and trip blanks (for VOCs) did not require qualification of the data. The laboratory quality control report and rinsate and trip blank results are included in Appendix B.

In summary, the data quality objectives (DQO's) presented in Tables 10 and 11 of the TPPEWP have been satisfied and the analytical results reported by the laboratory are considered acceptable.

### **3.2 MPK Analyses Results**

The MPK Narrative Report from MRI is included in Appendix C. This report indicates that problems were encountered with the analysis of the T-1 influent sample which prevented reliable reporting of MPK. Also, the laboratory has qualified some of the results that are shown in the Narrative Report. Except for the T-1 influent results with matrix interferences, the remaining results are considered acceptable.

### **3.3 Aquatic Toxicity Results**

The aquatic toxicity results report from RMC Environmental Services, Inc. is included in Appendix D. Acute aquatic toxicity is defined as the concentration of effluent which kills half the organisms in a test population per unit time. This is defined as the  $LC_{50}$ . An acute toxicity unit (Tables 6 and 8) is defined as 100 divided by the  $LC_{50}$ . The results indicate that the  $LC_{50}$  for each of the samples, after 24 and 48 hours, was greater than 100% effluent. In other words, the effluent mortality rate for the test population was less than 50% within the 48-hour test period. Results of control samples were also within acceptable criteria.

#### **4.0 PRESENTATION AND DISCUSSION OF RESULTS**

This section presents the Study's field testing and laboratory analyses results in a series of data summary tables as follows:

Table 4	Jar Test Observations and Measurements;
Table 5	Laboratory Analyses Results of Jar Test and Backwash Samples;
Table 6	Laboratory Analyses Results of Day 1 Aqueous Samples - Start of Study;
Table 7	Laboratory Analyses Results of Day 6 Aqueous Samples - Midpoint of Study;
Table 8	Laboratory Analyses Results of Day 8 Aqueous Samples - End of Study;
Table 9	Laboratory Analyses Results of Vapor Phase VOC;
Table 10	Field Testing Results - Aqueous; and,
Table 11	Field Testing Results - Vapor Phase.

The complete laboratory data packages for sample analyses conducted during the Study, including QA/QC, are provided in Appendices B, C, and D.

The following discussion of the Study results is focused on the Jar Test and additional sampling and the four specific Study objectives.

##### **4.1 Jar Test and Additional Sampling Results**

Table 4 presents the results of the Jar Test observations and measurements which are summarized below:

- Flocculation occurred immediately in all test beakers at pH values greater than 5.9;
- Flocculation did not occur at pH values less than 5.9;
- Aeration of the test beakers does not appear to have promoted flocculation without pH adjustment. Aeration also appears to have increased the settlement time of the flocculent;
- The settlement of the orangish brown flocculent was clearly defined (see Figure 3B);
- Flocculent settlement times were generally less than 5 minutes for all non-aerated samples having pH values greater than 5.9; and
- The color of the backwash No. 1 sludge (dark grey) compared to the backwash No. 2 sludge (orangish brown), as shown on Figures 2A and 2B, respectively, appears to indicate that fine carbon particles were contained in the backwash No. 1 sludge.

Table 5 presents the results of the additional metals analyses of backwash and Jar Test sludge and decant samples. In general, the results of these analyses can be summarized as follows:

- Iron and aluminum are the primary metal components of both the backwash and Jar Test sludges. It is believed that the precipitates formed are iron and aluminum hydroxides;
- Significant iron and aluminum removal was obtained as shown by the comparison of filtered decant and sludge sample analyses; and,
- Calcium, magnesium, manganese, potassium, and sodium did not precipitate in significant quantities as shown by the comparison of decant and sludge sample analyses. These metals appeared to remain within solution throughout the Study as exhibited by the values of total dissolved solid being relatively constant between influent and effluent sample locations (Table 10).

The results of the Jar Tests and additional metals analyses will be evaluated further with respect to the assessment of potential treatment plant modifications to be presented in the Treatment Plant Modifications Work Plan.

#### **4.2 Assessment of Influent Concentrations**

The influent concentration to the treatment plant (location T-1/Surge Tank) was determined on each of the three sampling days as shown in Tables 6, 7, and 8. In general, the concentration of influent constituents decreased during the Study.

The decrease in influent concentration may be attributable to the decrease of the flow contributed from LCS-2. In addition, on the last day of the Study (Day 8), the flow contribution from LCS-1 also markedly decreased leaving the majority of the influent being contributed from POND1. (Tables 3 and 4 of the TPPEWP indicate that LCS-2 contained the highest concentration of constituents and POND1 contained the lowest concentration.) Figure 4 presents a graphical comparison of the percent contribution to the total daily flow from each of the three sources on each day of the Study. It is also possible that constituent concentrations (such as ammonia) in any one of the three sources may have varied as pumping continued, and that the influent contained in the surge tank at any given time may have been predominantly from the source which was being pumped at that time.

The influent concentration test data, along with the source characterization data presented in the TPPEWP and hydrologic and hydrogeologic considerations for the steady state contribution of the various sources to the influent stream, will be evaluated as part of the assessment of treatment plant modifications to be presented in the Treatment Plant Modifications Work Plan.

### **4.3 Assessment of Removal Efficiencies**

As per the TPPEWP, the removal efficiencies for the major constituent groups were assessed for the unit processes of the treatment plant. Where appropriate, the removal efficiency (or percent removal) of a particular unit process was determined by subtracting the concentration of the constituent after the unit process from the concentration before the unit process and dividing that number by the concentration before the unit process.

#### **Bag Filtration**

A comparison of the analytical results from samples collected before and after each bag filter (see Tables 6, 7, and 8) did not show that the bag filters removed significant quantities of suspended solids or metals. Although no significant removal efficiencies were observed, the bag filters, especially the finer mesh size filters, required change-outs due to pressure build-up from particulate clogging.

Visual inspection of the bag filter contents showed the presence of accumulated orangish brown sludge, similar in color to the sludge generated during the Jar Tests, indicating the bag filters were removing some metal precipitate.

#### **Air Stripper**

Sample SP-2 (Influent to Bag Filter 2) was collected to assess the removal efficiency of VOCs by the air stripper. In addition, metal concentrations were evaluated to assess possible scaling or the accumulation of metal precipitate in the air stripper. The removal efficiency of total VOCs was determined to be approximately 65% on Day 1 and approximately 80% on Day 8. This removal efficiency is lower than the design efficiency estimated at approximately 99%. It is not believed that fouling was a major contributor to the low air stripper performance because the metals concentrations did not appreciably decrease within the air stripper. In addition, while visual observations of the top shallow tray of the air stripper showed a trace

coating of orangish brown material on the surface, none of the aeration holes were impeded.

Further investigation of the air stripper efficiency is ongoing as part of the assessment of potential treatment plant modifications that will be presented in the Treatment Plant Modifications Work Plan.

### **Liquid Phase GAC Units**

Sample SP-4 (Influent to GAC 2) and sample SP-5 (effluent) were collected to assess the performance of the liquid phase GAC system. A removal efficiency of 100% for total VOC, SVOC, pesticides, and MPK was obtained by the first GAC unit on Day 1. However, the Day 8 sample indicated that breakthrough of some VOCs, SVOCs, pesticides, mirex, and possibly photomirex had occurred. Because the effluent results for mirex (Day 6) and photomirex (Day 8) are qualified, effluent concentration of these compounds is in question.

Possible reasons for the organic constituents breakthrough of the GAC beds are:

- the treatment plant experienced higher than anticipated organic loading as measured by TOC, BOD, COD, in addition to the VOC, SVOC, and other individual organic constituents of concern;
- metals precipitation and fouling of the GAC;
- metals adsorption by the carbons;
- frequent backwashing of the GAC units which may have induced channeling through the beds, or caused a redistribution of the GAC mixing spent carbon throughout the unit; and,
- frequent backwashing with influent from the air stripper sump may have caused a reduction in the adsorbability of the GAC.

Further evaluation of the influent characteristics with respect to organic loading and evaluation of carbon usage rates will be examined during the assessment of



treatment plant modifications that will be presented in the Treatment Plant Modifications Work Plan.

### **Vapor Phase GAC Units**

Samples A-1 and A-2 (air samples before and after the vapor-phase GAC units) were collected to assess air-phase VOC treatment efficiency. The vapor-phase VOCs results are presented in Table 10. The removal efficiency was 99.99% for Day 1 and 99.72% for Day 8. On Day 1, benzene and toluene were detected at trace concentrations (0.002 ppmv and 0.004 ppmv, respectively) in the effluent from the second vapor-phase carbon unit but were not detected on Day 8. In addition, chloromethane was detected on Day 8 in the effluent sample location A-2 at a concentration of 0.075 ppmv (primary) and 0.077 ppmv (field duplicate). Although the chloromethane was detected in A-2 on Day 8 in both the primary and field duplicate samples, the presence of chloromethane in the effluent should be considered anomalous because it was not detected in the influent air stream nor in any aqueous samples.

### **4.4 Assessment of Metals Treatment Potential**

Metal concentrations were also examined to assess potential removal by the GAC units. Based on the results, significant quantities of iron and aluminum were removed on all three days of sampling. The primary removal mechanism is believed to be precipitation of metal hydroxides and filtration within the GAC beds. Both the air stripper and predominantly the GAC units increased the pH of the influent causing the iron and aluminum hydroxide precipitates to form. In addition, some metal adsorption onto the GAC and/or coprecipitation of the metals within the GAC may have occurred to a much lesser extent.

## 5.0 CONCLUSIONS


The treatment plant performance evaluation identified the following performance and operational concerns:

- metal precipitation (expected to be aluminum and iron hydroxides) occurred in the GAC units causing excessive pressure build-up and fouling;
- air stripper removal efficiencies were lower than expected;
- organic constituents breakthrough in the GAC units occurred; and,
- ammonia is a parameter which warrants further consideration with respect to future modifications to the treatment plant.

Considering the above, and as per paragraph 4c of the Removal AOC, RNC will prepare a TPPEWP Addendum (to be called the Treatment Plant Modifications Work Plan) which will evaluate and discuss these issues in more detail, present options to help resolve these issues, make recommendations for possible treatment plant modifications, and present a schedule for design and implementation of any modifications with a proposed operational start-up date of the treatment plant.



Joseph E. Cavanagh  
Environmental Scientist



Randolph S. White, P.E.  
Associate

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**TABLE 2**  
**DAILY OPERATIONAL SUMMARY**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

DAILY SUMMARY			STUDY SUMMARY	
Date	Total Run Time [hours]	Total Flow [gallons]	Backwash	
12-1-93	09:38	9566.5	Backwash cycles	8
12-2-93	06:40	6845.1	Backwash Hours	04:12
12-3-93	11:13	10550.6	Backwash Flow	3363.4 gallons
12-4-93	10:00	11266.3	Backwash flow per cycle	420 gallons
12-5-93	11:00	11861.0	Treatment	
12-6-93	16:05	26985.3	Treatment Hours	96:26
12-7-93	23:12	25689.9	Cumulative Flow	105052.6 gallons
12-8-93	12:50	5651.3	Average gpm	18 gpm
Total	100:38	108416.0		

**Notes:**

Total Run Time – refers to both treatment and backwash cycles.

Total Flow – refers to total influent pumped during both treatment and backwash cycles.

The gallons per day shown above may be comprised of flow during portions of two calendar days if a treatment cycle extended over two days (see Table 1).

**TABLE 3**  
**PRESSURE GAUGE RECORD**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

Cycle	Date	Time On	Time Off	Run Time	Pressures (psi)								
					#1 Bag			#2 Bag			Liq. GAC		
					Pre	Post	Differential	Pre	Post	Differential	Pre	Post	Differential
Treatment	12-1-93	11:27	21:05	09:32	4.00	4.00	0.00	36.00	34.00	2.00	9.00	6.00	3.00
Backwash #1	12-2-93	14:05	14:45	00:40	NA	NA	NA	NA	NA	NA	11.00	4.00	7.00
Treatment (*)	12-2-93	15:45	21:45	06:00	6.00	4.00	2.00	35.00	35.00	0.00	9.25	6.25	3.00
Treatment	12-3-93	06:00	14:06	08:06	10.00	4.00	6.00	36.00	34.00	2.00	10.00	5.50	4.50
Backwash #2	12-3-93	14:38	15:18	00:40	NA	NA	NA	NA	NA	NA	11.50	4.75	6.75
Treatment	12-3-93	15:38	18:05	02:27	NA	NA	NA	NA	NA	NA	9.25	6.00	3.25
Treatment (*)	12-4-93	07:00	08:10	01:10	25.00	4.00	21.00	35.00	34.00	1.00	9.50	5.50	4.00
Treatment	12-4-93	08:10	17:00	08:50	4.00	4.00	0.00	35.00	34.00	1.00	NA	NA	NA
Backwash #3	12-5-93	07:05	08:05	01:00	NA	NA	NA	NA	NA	NA	10.25	3.50	6.75
Treatment	12-5-93	08:15	18:15	10:00	NA	NA	NA	NA	NA	NA	9.25	5.50	3.75
Treatment	12-6-93	07:00	08:00	01:00	4.00	4.00	0.00	40.00	34.00	6.00	10.50	4.50	6.00
Backwash #4	12-6-93	08:15	08:40	00:25	NA	NA	NA	NA	NA	NA	10.75	4.00	6.75
Treatment (*)	12-6-93	08:50	10:50	02:00	5.00	4.00	1.00	38.00	28.00	10.00	9.25	6.25	3.00
Treatment	12-6-93	10:50	20:00	09:10	5.00	4.00	1.00	35.00	36.00	-1.00	NA	NA	NA
Backwash #5	12-6-93	20:10	20:25	00:15	NA	NA	NA	NA	NA	NA	11.50	4.75	NA
Treatment	12-6-93	20:45	07:15	10:30	NA	NA	NA	NA	NA	NA	9.00	6.00	3.00
Backwash #6	12-7-93	07:30	08:05	00:35	5.00	4.00	1.00	40.00	37.00	3.00	11.50	4.75	6.75
Treatment	12-7-93	08:15	20:45	12:30	NA	NA	NA	NA	NA	NA	9.75	6.50	3.25
Backwash #7	12-7-93	20:55	21:12	00:17	NA	NA	NA	NA	NA	NA	10.75	4.75	6.00
Treatment	12-7-93	21:25	06:15	08:50	NA	NA	NA	NA	NA	NA	9.50	6.50	3.00
Backwash #8 (*)	12-8-93	06:25	06:45	00:20	6.00	4.00	2.00	38.00	30.00	8.00	11.00	5.00	6.00
Treatment	12-8-93	06:45	13:00	06:15	6.00	4.00	2.00	36.00	38.00	-2.00	10.00	6.75	3.25
Shut Down	12-8-93				7.00	4.00	3.00	38.00	38.00	0.00	10.50	5.00	5.50

NOTES: (\*) cycle during which bag filters were replaced.

psi = pounds per square inch

Time = hours:minutes

**TABLE 4**  
**JAR TEST - OBSERVATIONS AND MEASUREMENTS**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

PRE-AIR STRIPPER INFLUENT						
Target pH(1)	5.0	6.0	6.5	7.0	7.5	8.0
Adjusted pH (3)	4.88	6.14	6.53	7.02	7.50	7.99
Flocculent Settlement Time before aeration(2)	none	4:00	3:30	3:30	4:30	5:30
pH after aeration	4.80	6.07	6.52	6.85	7.11	7.80
Flocculent Settlement Time after aeration	none	5:30	5:30	5:30	5:30	5:30
POST-AIR STRIPPER						
Target pH	5.0	6.0	6.5	7.0	7.5	8.0
Adjusted pH (3)	4.90	5.96	6.53	7.04	7.64	8.14
Flocculent Settlement Time before aeration	none	4:30	3:00	3:30	2:30	3:00
pH after aeration	4.90	5.90	6.49	7.00	7.49	8.00
Flocculent Settlement Time after aeration	none	7:00	7:00	5:00	5:00	5:00

**NOTES:**

- (1) pH values are unitless.
- (2) Time values are in minutes:seconds.
- (3) Flocculation occurred immediately after pH adjustment greater than 6.0.

TABLE 1  
TEST CHRONOLOGY AND FLOW VOLUME RECORD  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

Cycle	Date	Time On	Time Off	Run Time	LCS #1		LCS #2		Pond #1		Total Gallons per Cycle
					Gallons	Cumm. Gallons	Gallons	Cumm. Gallons	Gallons	Cumm. Gallons	
Treatment (*)	12-1-93	11:27	21:05	09:38	3888.1	3888.1	625.2	625.2	5053.2	5053.2	9566.5
Backwash #1	12-2-93	14:05	14:45	00:40	355.9	4244.0	64.7	689.9	464.3	5517.5	884.9
Treatment @	12-2-93	15:45	21:45	06:00	1857.0	6101.0	529.5	1219.4	3573.7	9091.2	5960.2
Treatment	12-3-93	06:00	14:06	08:06	1384.5	7485.5	579.5	1798.9	5116.7	14207.9	7080.7
Backwash #2	12-3-93	14:38	15:18	00:40	0.0	7485.5	0.0	1798.9	701.0	14908.9	701.0
Treatment	12-3-93	15:38	18:05	02:27	946.2	8431.7	201.5	2000.4	1621.2	16530.1	2768.9
Treatment @	12-4-93	07:00	08:10	01:10	537.7	8969.4	188.5	2188.9	587.1	17117.2	1313.3
Treatment	12-4-93	08:10	17:00	08:50	4327.0	13296.4	625.8	2814.7	5000.2	22117.4	9953.0
Backwash #3	12-5-93	07:05	08:05	01:00	0.0	13296.4	0.0	2814.7	436.0	22553.4	436.0
Treatment	12-5-93	08:15	18:15	10:00	5032.5	18328.9	714.0	3528.7	5678.5	28231.9	11425.0
Treatment	12-6-93	07:00	08:00	01:00	249.4	18578.3	126.4	3655.1	331.6	28563.5	707.4
Backwash #4	12-6-93	08:15	08:40	00:25	0.0	18578.3	0.0	3655.1	450.0	29013.5	450.0
Treatment @	12-6-93	08:50	10:50	02:00	929.6	19507.9	452.9	4108.0	1199.0	30212.5	2581.5
Treatment (*)	12-6-93	10:50	20:00	09:10	4492.1	24000.0	380.8	4488.8	5180.0	35392.5	10052.9
Backwash #5	12-6-93	20:10	20:25	00:15	(---)	(---)	0.0	4488.8	(---)	(---)	(---)
Treatment	12-6-93	20:45	07:15	10:30	5631.1	29631.1	491.1	4979.9	7071.3	7071.3	13193.5
Backwash #6	12-7-93	07:30	08:05	00:35	0.0	29631.1	0.0	4979.9	200.0	7271.3	200.0
Treatment	12-7-93	08:15	20:45	12:30	6500.8	36131.9	522.0	5501.9	7959.0	15230.3	14981.8
Backwash #7	12-7-93	20:55	21:12	00:17	132.3	36264.2	49.5	5551.4	161.7	15392.0	343.5
Treatment	12-7-93	21:25	06:15	08:50	4262.7	40526.9	475.1	6026.5	5426.8	20818.8	10164.6
Backwash #8 @	12-8-93	06:25	06:45	00:20	0.0	40526.9	10.0	6036.5	338.0	21156.8	348.0
Treatment (*)	12-8-93	06:45	13:00	06:15	1337.9	41864.8	181.1	6217.6	3784.3	24941.1	5303.3
Total Run Time				100:38	Total Flow Volume						108416.0

NOTES: (\*) = cycle during which aqueous and vapor phase samples collected.

@ = cycle during which bag filters were replaced.

Start = start of the plant leachate treatment cycle.

(---) = volume of influent used in backwash cycle #5 was not recorded.

cumm. = cumulative

The gallons per cycle shown above may be comprised of flow during portions of two calendar days.

TABLE 5  
LABORATORY ANALYSES RESULTS OF JAR TEST AND BACKWASH SAMPLES  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	GAC1 BACKWASH SLUDGE	GAC1 BACKWASH DECANT	GAC1 BACKWASH DECANT	PRE- AIR STRIPPER JAR TEST SLUDGE	PRE- AIR STRIPPER JAR TEST DECANT	POST- AIR STRIPPER JAR TEST SLUDGE	POST- AIR STRIPPER JAR TEST DECANT
METALS	UNFILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED	UNFILTERED	FILTERED
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic	0.14	<0.010	<0.010	0.016	<0.010	0.015	<0.010
Lead	0.138	<0.0030	<0.0030	0.0154	<0.0030	0.0072	<0.0030
Selenium	0.028	0.0078	<0.0050	0.0105	0.005	0.0081	<0.0050
Thallium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Aluminum	879	2.03	0.085	75.3	0.104	73.8	<0.050
Antimony	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Barium	0.48	0.047	0.044	0.057	0.037	0.051	0.042
Beryllium	0.0403	<0.0025	<0.0025	0.0047	<0.0025	0.0044	<0.0025
Cadmium	0.0318	<0.0025	<0.0025	0.0091	<0.0025	0.0079	<0.0025
Calcium	148	133	132	255	232	240	235
Chromium	0.273	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Cobalt	0.05	<0.013	<0.013	0.07	0.022	0.065	0.024
Copper	3.85	0.0178	0.0062	0.0317	0.0113	0.0294	0.0088
Iron	327	3.26	0.571	54.6	<0.025	50.6	5.14
Magnesium	26.1	24.3	24	50.7	47.7	49.6	47.1
Manganese	3.41	1.28	1.17	6.33	4.69	6.28	4.65
Nickel	0.357	0.033	0.03	0.145	0.054	0.139	0.06
Potassium	5.4	3.67	3.62	5.98	5.81	5.83	5.69
Silver	0.026	<0.0050	<0.0050	0.0083	<0.0050	0.0075	<0.0050
Sodium	34.1	31.8	31.5	238	224	156	151
Vanadium	0.364	<0.0025	<0.0025	0.0456	<0.0025	0.0455	<0.0025
Zinc	1.49	0.033	0.0118	0.664	0.0131	0.606	0.0908

NOTES: All values are in mg/l.

TABLE 6  
 LABORATORY ANALYSES RESULTS OF DAY ONE (12/01/93) AQUEOUS SAMPLES  
 TREATMENT PLANT PERFORMANCE EVALUATION  
 NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
Total Suspended Solids	85	80	NA	NA	NA	<7
Total Dissolved Solids	1800	NA	NA	NA	NA	1500
Ammonia	9	NA	NA	NA	NA	8
Biological Oxygen Demand	120	NA	NA	NA	NA	15
Total Organic Carbon	250	NA	NA	NA	NA	6
Chemical Oxygen Demand	790	NA	NA	NA	NA	<50

NOTES: All values are in mg/l. NA = Not Analyzed. ND = Not Detected.  
 Compounds not reported were not detected.



**TABLE 6**  
**LABORATORY ANALYSES RESULTS OF DAY ONE (12/01/93) AQUEOUS SAMPLES**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

PARAMETER	T-1 SURGE TANK (INFLUENT)		SP-1 INFLUENT TO AIR STRIPPER		SP-2 INFLUENT TO BAG FILTER 2		SP-3 INFLUENT TO GAC 1		SP-4 INFLUENT TO GAC 2		SP-5 EFFLUENT	
	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered
<b>METALS</b>												
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic	<0.010	<0.010	<0.010	<0.010	0.011	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	0.0036	0.0061	0.0063	<0.0030	0.0058	<0.0030	0.0042	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Selenium	<0.0050	0.0067	<0.0050	0.0075	0.0063	0.0111	<0.0050	0.0105	<0.0050	<0.0050	<0.0050	0.0071
Thallium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Aluminum	38.7	27.3	35.3	23.9	39.3	24.0	38.5	25.4	0.636	0.493	0.051	<0.050
Antimony	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Barium	0.046	0.043	0.047	0.042	0.044	0.042	0.046	0.041	0.104	0.091	0.145	0.138
Beryllium	<0.0025	<0.013	<0.0025	<0.013	<0.0025	<0.013	<0.0025	<0.013	<0.0025	<0.013	<0.0025	<0.013
Cadmium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Calcium	252	237	245	234	254	243	256	245	255	226	264	258
Chromium	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Cobalt	0.043	0.043	0.044	0.042	0.050	0.046	0.051	0.046	0.055	0.050	0.059	0.057
Copper	0.0177	0.0229	0.0926	0.0147	0.0233	0.0196	0.0526	0.0174	<0.0050	<0.0050	<0.0050	<0.0050
Iron	28.2	26.5	28.5	25.7	30.1	27.7	31.1	27.9	13.7	12.1	0.577	0.359
Magnesium	48.4	46.9	47.5	45.9	50.1	49.8	50.2	52.2	52.0	48.7	51.1	52.7
Manganese	5.17	5.05	5.23	4.87	5.71	5.35	5.92	5.42	6.16	5.45	6.57	6.40
Nickel	0.095	0.096	0.096	0.091	0.108	0.103	0.117	0.105	0.144	0.131	0.177	0.168
Potassium	5.83	5.71	5.73	5.93	5.34	5.90	5.48	6.09	5.92	5.88	5.85	6.29
Silver	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	71.9	75.8	71.4	74.7	75.2	84.4	76.0	87.1	86.2	89.3	87.8	90.9
Vanadium	0.0265	0.0124	0.0247	0.0104	0.0234	0.0088	0.0229	0.008	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	0.338	0.321	0.377	0.287	0.371	0.319	0.42	0.336	0.41	0.379	0.188	0.132
Total Cyanide	<0.0050	NA	0.0062	NA	0.0064	NA	0.0076	NA	<0.0050	NA	<0.0050	NA

NOTES: All values are in mg/l. NA = Not Analyzed. ND = Not Detected.  
 Compounds not reported were not detected.

TABLE 6  
LABORATORY ANALYSES RESULTS OF DAY ONE (12/01/93) AQUEOUS SAMPLES  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
<b>VOLATILE ORGANICS (1)</b>						
1,2-Dichloroethene (total)	3.8	3.8	0.87	NA	NA	<0.005
1,2-Dichloroethane	3.6	3.6	2.3	NA	NA	<0.005
1,1,2,2-Tetrachloroethane	8.3	8.5	7.8	NA	NA	<0.005
Trichloroethene	3.5	3.8	0.54	NA	NA	<0.005
Benzene	11	11	2.0	NA	NA	<0.005
Tetrachloroethene	7.2	8	<0.1	NA	NA	<0.005
Toluene	1.4	1.4	0.28	NA	NA	<0.005
Chlorobenzene	0.61	0.67	0.2	NA	NA	<0.005
Bromoform	<0.25	<0.5	0.14	NA	NA	<0.005
<b>SEMIVOLATILE ORGANICS (1)</b>						
Phenol	0.018	NA	NA	NA	<0.010	<0.010
2,4-Dichlorophenol	0.12	NA	NA	NA	<0.010	<0.010
2,4,6-Trichlorophenol	0.013	NA	NA	NA	<0.010	<0.010
1,4-Dichlorobenzene	0.084	NA	NA	NA	<0.010	<0.010
1,2-Dichlorobenzene	13	NA	NA	NA	<0.010	<0.010
Hexachloroethane	0.029	NA	NA	NA	<0.010	<0.010
Benzoic Acid	29	NA	NA	NA	<0.050	<0.050
3,4-Dichloronitrobenzene	<0.050	NA	NA	NA	<0.050	<0.050
Diphenyl Sulfone	2.9	NA	NA	NA	<0.010	<0.010

NOTES: All values are in mg/l. NA = Not Analyzed. ND = Not Detected.  
Compounds not reported were not detected.

TABLE 6  
 LABORATORY ANALYSES RESULTS OF DAY ONE (12/01/93) AQUEOUS SAMPLES  
 TREATMENT PLANT PERFORMANCE EVALUATION  
 NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
<b>PESTICIDES (1)</b>						
Methoxychlor	<0.0005	NA	NA	NA	<0.0005	<0.00005
<b>MPK (3)</b>						
Mirex	3.65E-4 (X)	NA	NA	NA	3.1E-6 (J,Y,X)	1.2E-6 (Z,K)
Photomirex	3.3E-5 (J,Z,K)	NA	NA	NA	ND	ND
Kepone	ND	NA	NA	NA	ND	ND
<b>ACUTE TOXICITY</b>						
TUa Ceriodaphnia	NA	NA	NA	NA	NA	1.0 (2)
TUa Pimephales promelas	NA	NA	NA	NA	NA	1.0 (2)

Data Qualifiers for MPK: J = concentration below reporting limit, estimated value; X = presence strongly indicated, ion criteria not met for confirmation ion; Y = presence strongly indicated, not all ions present; Z = presence strongly indicated, ion criteria not met for quantitation ions; K = concentration calculated using confirmation ions.

NOTES: All values are in mg/l. NA = Not Analyzed. ND = Not Detected.  
 Compounds not reported were not detected.

TABLE 7  
 LABORATORY ANALYSES RESULTS OF DAY SIX (12/06/93) AQUEOUS SAMPLES  
 TREATMENT PLANT PERFORMANCE EVALUATION  
 NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
Total Suspended Solids	80	80	NA	NA	NA	<7
Total Dissolved Solids	1570	NA	NA	NA	NA	770
Ammonia	7.0	NA	NA	NA	NA	3.0
Biological Oxygen Demand	171	NA	NA	NA	NA	63
Total Organic Carbon	160	NA	NA	NA	NA	25
Chemical Oxygen Demand	690	NA	NA	NA	NA	100

NOTES: All values are in mg/l.      NA = not analyzed.      ND= Not Detected.  
 Compounds not reported were not detected.

TABLE 7  
LABORATORY ANALYSES RESULTS OF DAY SIX (12/06/93) AQUEOUS SAMPLES  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)		SP-1 INFLUENT TO AIR STRIPPER		SP-2 INFLUENT TO BAG FILTER 2		SP-3 INFLUENT TO GAC 1		SP-4 INFLUENT TO GAC 2		SP-5 EFFLUENT	
	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered
<b>METALS</b>												
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	<0.0030	<0.0030	0.0104	0.0132	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Selenium	0.0096	<0.0050	0.009	0.0055	<0.0050	0.0055	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Thallium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Aluminum	29.8	16.9	29.0	16.1	16.3	0.347	13.9	0.201	0.779	0.480	0.29	0.212
Antimony	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Barium	0.035	0.033	0.035	0.033	0.036	0.034	0.036	0.034	0.035	0.036	0.045	0.046
Beryllium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cadmium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Calcium	232	232	234	236	190	197	187	190	152	159	150	159
Chromium	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Cobalt	0.040	0.039	0.040	0.037	0.024	0.024	0.022	0.022	0.013	0.014	0.019	0.020
Copper	0.0176	0.0165	0.0205	0.0292	0.0072	0.0095	0.0087	0.0086	0.0606	0.0628	0.0372	0.0348
Iron	23.0	21.7	22.5	21.2	14.8	14.0	13.7	12.8	2.17	2.13	0.077	0.066
Magnesium	48.4	45.7	47.9	45.3	37.6	35.9	35.8	34.2	27.5	27.5	29.1	28.7
Manganese	4.8	4.66	4.71	4.58	3.21	3.17	3.0	2.94	1.99	2.08	2.35	2.40
Nickel	0.086	0.087	0.083	0.081	0.053	0.076	0.049	0.091	0.044	0.044	0.080	0.084
Potassium	5.89	5.8	5.84	5.9	4.91	5.0	4.71	4.43	3.88	3.83	4.06	4.08
Silver	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	73.1	75.2	72.7	75.1	53.6	56.9	51.7	50.9	38.6	39.1	39.2	42
Vanadium	0.015	0.0058	0.0152	0.0060	0.0089	<0.0025	0.0069	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	0.260	0.287	0.256	0.293	0.0163	0.217	0.144	0.227	0.0931	0.0991	0.127	0.136
Total Cyanide	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0050	NA

NOTES: All values are in mg/l.      NA = not analyzed.      ND= Not Detected.  
Compounds not reported were not detected.

TABLE 7  
 LABORATORY ANALYSES RESULTS OF DAY SIX (12/08/93) AQUEOUS SAMPLES  
 TREATMENT PLANT PERFORMANCE EVALUATION  
 NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
<b>VOLATILE ORGANICS (1)</b>						
1,2-Dichloroethene (total)	2.9	NA	NA	NA	NA	<0.005
1,2-Dichloroethane	3.0	NA	NA	NA	NA	0.025
1,1,2,2-Tetrachloroethane	6.7	NA	NA	NA	NA	0.010
Trichloroethene	3.4	NA	NA	NA	NA	<0.005
Benzene	9.6	NA	NA	NA	NA	<0.005
Tetrachloroethene	7.4	NA	NA	NA	NA	<0.005
Toluene	1.3	NA	NA	NA	NA	<0.005
Chlorobenzene	0.51	NA	NA	NA	NA	<0.005
<b>SEMIVOLATILE ORGANICS (1)</b>						
Phenol	0.012	NA	NA	NA	NA	<0.010
2,4-Dichlorophenol	0.079	NA	NA	NA	NA	<0.010
1,4-Dichlorobenzene	0.070	NA	NA	NA	NA	<0.010
1,2-Dichlorobenzene	10	NA	NA	NA	NA	<0.010
Hexachloroethane	0.024	NA	NA	NA	NA	<0.010
Benzoic Acid	19	NA	NA	NA	NA	<0.050
3,4-Dichloronitrobenzene	<0.050	NA	NA	NA	NA	<0.050
Diphenyl Sulfone	<2.0	NA	NA	NA	NA	<0.010

NOTES: All values are in mg/l. NA = not analyzed. ND= Not Detected.

Compounds not reported were not detected.

TABLE 7  
 LABORATORY ANALYSES RESULTS OF DAY SIX (12/06/93) AQUEOUS SAMPLES  
 TREATMENT PLANT PERFORMANCE EVALUATION  
 NEASE CHEMICAL SITE, SALEM, OHIO

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
PESTICIDES (1)						
Methoxychlor	<0.005	NA	NA	NA	NA	<0.00005
MPK (2)						
Mirex	4.4E-5 (J,Y,X)	NA	NA	NA	NA	8.9E-6 (X,Y)
Photomirex	ND	NA	NA	NA	NA	ND
Kepone	ND	NA	NA	NA	NA	ND

Data Qualifiers for MPK: J = concentration below reporting limit, estimated value; X = presence strongly indicated, ion criteria not met for confirmation ion; Y = presence strongly indicated, not all ions present; Z = presence strongly indicated, ion criteria not met for quantitation ions; K = concentration calculated using confirmation ions.

NOTES: All values are in mg/l. NA = not analyzed. ND = Not Detected.  
 Compounds not reported were not detected.

**TABLE 8**  
**LABORATORY ANALYSES RESULTS OF DAY EIGHT (12/08/93) AQUEOUS SAMPLES**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
Total Suspended Solids	30	30	NA	NA	NA	<7
Total Dissolved Solids	690	NA	NA	NA	NA	670
Ammonia	<1.0	NA	NA	NA	NA	<1.0
Biological Oxygen Demand	43	NA	NA	NA	NA	5.0
Total Organic Carbon	28	NA	NA	NA	NA	28
Chemical Oxygen Demand	100	NA	NA	NA	NA	70

NOTES: All values are in mg/l.      NA = not analyzed.      ND = Not Detected.  
 Compounds not reported were not detected.      Toxicity Unit (100/LC50)



**TABLE 8**  
**LABORATORY ANALYSES RESULTS OF DAY EIGHT (12/08/93) AQUEOUS SAMPLES**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

PARAMETER	T-1 SURGE TANK (INFLUENT)		SP-1 INFLUENT TO AIR STRIPPER		SP-2 INFLUENT TO BAG FILTER 2		SP-3 INFLUENT TO GAC 1		SP-4 INFLUENT TO GAC 2		SP-5 EFFLUENT	
	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered	unfiltered	filtered
<b>METALS</b>												
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Arsenic	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Selenium	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Thallium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Aluminum	2.87	0.141	2.32	0.129	1.14	0.072	1.03	0.060	0.118	0.051	0.066	0.070
Antimony	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Barium	0.043	0.041	0.045	0.043	0.043	0.040	0.042	0.043	0.036	0.035	0.035	0.036
Beryllium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cadmium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Calcium	134	135	138	143	136	136	138	140	127	134	126	132
Chromium	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Cobalt	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013	<0.013
Copper	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0141	0.0151	0.0206	0.0203
Iron	5.63	5.04	5.43	4.43	4.71	3.38	4.52	3.28	1.65	1.37	0.259	0.080
Magnesium	22.1	22.9	22.3	22.3	22.1	21.6	21.7	21.5	22.1	22.2	22.4	21.7
Manganese	1.18	1.21	1.14	1.11	1.02	0.965	1.0	0.985	1.06	1.03	1.23	1.25
Nickel	0.013	0.017	0.013	0.013	<0.013	<0.013	<0.013	<0.013	0.017	0.017	0.034	0.035
Potassium	3.55	3.54	3.61	3.50	3.47	3.38	3.44	3.45	3.45	3.49	3.43	3.32
Silver	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	31.7	31.9	30.0	30.0	29.2	28.6	28.8	28.6	29.4	29.5	29.8	29.1
Vanadium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	0.013	0.025	0.022	0.015	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	0.045	0.040
Total Cyanide	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0050	NA	<0.0050	NA

NOTES: All values are in mg/l. NA = not analyzed. ND = Not Detected.  
 Compounds not reported were not detected. Toxicity Unit (100/LC50)

**TABLE 8**  
**LABORATORY ANALYSES RESULTS OF DAY EIGHT (12/08/93) AQUEOUS SAMPLES**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
<b>VOLATILE ORGANICS (1)</b>						
Vinyl Chloride	<0.010	0.098	<0.050	NA	NA	<0.010
1,1-Dichloroethene	<0.005	0.009	<0.025	NA	NA	<0.005
1,2-Dichloroethene (total)	0.150	2.6	0.64	NA	NA	0.047
1,2-Dichloroethane	0.015	0.24	0.074	NA	NA	0.11
Chloroform	<0.005	0.050	<0.025	NA	NA	<0.005
1,1,2,2-Tetrachloroethane	0.036	0.44	0.24	NA	NA	0.062
Carbon Tetrachloride	<0.005	0.012	<0.025	NA	NA	<0.005
Trichloroethene	0.035	0.56	0.090	NA	NA	0.005
1,1,2-Trichloroethane	<0.005	0.015	<0.025	NA	NA	<0.005
Benzene	0.049	0.73	0.027	NA	NA	0.018
Bromoform	<0.005	0.007	<0.025	NA	NA	<0.005
Tetrachloroethene	0.086	1.4	0.180	NA	NA	<0.005
Toluene	0.010	0.16	0.026	NA	NA	<0.005
Chlorobenzene	0.008	0.13	0.029	NA	NA	<0.005
Ethylbenzene	<0.005	0.028	<0.025	NA	NA	<0.005
Xylene (total)	<0.005	0.011	<0.025	NA	NA	<0.005
<b>SEMIVOLATILE ORGANICS (1)</b>						
1,4-Dichlorobenzene	0.019	NA	NA	NA	<0.010	<0.010
1,2-Dichlorobenzene	1.5	NA	NA	NA	0.54	0.021
Benzoic Acid	1.5	NA	NA	NA	0.72	0.48
3,4-Dichloronitrobenzene	<0.050	NA	NA	NA	<0.050	<0.050
Diphenyl Sulfone	0.3	NA	NA	NA	0.13	0.011

NOTES: All values are in mg/l. NA = not analyzed. ND = Not Detected.  
 Compounds not reported were not detected. Toxicity Unit (100/LC50)

**TABLE 8**  
**LABORATORY ANALYSES RESULTS OF DAY EIGHT (12/08/93) AQUEOUS SAMPLES**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

PARAMETER	T-1 SURGE TANK (INFLUENT)	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT
<b>PESTICIDES (1)</b>						
Methoxychlor	<0.0003	NA	NA	NA	<0.00018	<0.00005
<b>MPK (3)</b>						
Mirex	5.8E-4	NA	NA	NA	1.1E-4	6.9E-5
Photomirex	4.8E-5	NA	NA	NA	1.5E-5 (J)	7.3E-6 (J,Z,K)
Kepone	5.6E-5 (J,Z,K)	NA	NA	NA	3.0E-5 (J,Y,Z,K)	ND
<b>ACUTE TOXICITY</b>						
TUa Ceriodaphnia	NA	NA	NA	NA	NA	1.0 (2)
TUa Pimephales promelas	NA	NA	NA	NA	NA	1.0 (2)

Data Qualifiers for MPK: J = concentration below reporting limit, estimated value; X = presence strongly indicated, ion criteria not met for confirmation ion; Y = presence strongly indicated, not all ions present; Z = presence strongly indicated, ion criteria not met for quantitation ions; K = concentration calculated using confirmation ions.

NOTES: All values are in mg/l.      NA = not analyzed.      ND = Not Detected.  
 Compounds not reported were not detected.      Toxicity Unit (100/LC50)

**TABLE 9**  
**LABORATORY ANALYSES RESULTS OF VAPOR PHASE**  
**VOLATILE ORGANIC COMPOUNDS**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

**DAY ONE (12/01/93) RESULTS**

VOLATILE ORGANIC	A-1 INFLUENT TO VAPOR PHASE GAC 1		A-2 EFFLUENT FROM VAPOR PHASE GAC 2	
	ppmv	mg/m <sup>3</sup>	ppmv	mg/m <sup>3</sup>
cis-1,2-Dichloroethene	31	123	<0.002	<7.9
1,2-Dichloroethane	19	77	<0.002	<8.1
Benzene	110	351	0.002	6.4
Trichloroethene	29	155	<0.002	<10.7
Toluene	18	68	0.004	15.1
Tetrachloroethane	42	285	<0.002	<13.6
Chlorobenzene	4.5	21	<0.002	<9.2
1,1,2,2-Tetrachloroethane	8.1	56	<0.002	<13.7
1,2-Dichlorobenzene	40	240	<0.002	<12.0
<b>TOTAL VOCs</b>	<b>301.6</b>	<b>1,376</b>	<b>0.006</b>	<b>21.5</b>

**DAY EIGHT (12/08/93) RESULTS**

VOLATILE ORGANIC	A-1 INFLUENT TO VAPOR PHASE GAC 1		A-2 EFFLUENT FROM VAPOR PHASE GAC 2	
	ppmv	mg/m <sup>3</sup>	ppmv	mg/m <sup>3</sup>
Chloromethane	<0.030	<6.1	0.075	0.15
Vinyl chloride	0.94	2.4	<0.002	<0.0052
1,1-Dichloroethene	0.18	0.71	<0.002	<0.0079
cis-1,2-Dichloroethene	11	43.6	<0.002	<0.0079
Chloroform	0.55	2.68	<0.002	<0.0097
1,2-Dichloroethane	0.65	2.63	<0.002	<0.0081
Benzene	1.7	5.42	<0.002	<0.0064
Trichloroethene	1.7	9.11	<0.002	<0.0107
Toluene	1.8	6.77	<0.002	<0.0075
1,1,2-Trichloroethane	0.052	0.28	<0.002	<0.0109
Tetrachloroethane	3.0	20.4	<0.002	<0.0136
Chlorobenzene	1.2	5.55	<0.002	<0.0092
Ethylbenzene	0.5	2.17	<0.002	<0.0087
m,p-Xylene	0.044	0.19	<0.002	<0.0087
1,1,2,2-Tetrachloroethane	0.26	1.79	<0.002	<0.0137
1,2-Dichlorobenzene	3.9	23.4	<0.002	<0.012
1,4-Dichlorobenzene	0.16	0.96	<0.002	<0.012
<b>TOTAL VOCs</b>	<b>27.086</b>	<b>128.06</b>	<b>0.075</b>	<b>0.15</b>

TABLE 10  
FIELD TESTING RESULTS - AQUEOUS  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

DATA - TIME PARAMETER	T-1 INFLUENT	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT	DISCHARGE CRITERIA (DAILY MAX.)
<u>12/01/93 - 13:30</u>							
pH	4.92	4.85	4.94	4.80	5.71	6.61	6.5-8.5
Specific Conductance	2000	2100	2160	2200	2060	2100	
Temperature	44.8	45.9	46.1	46.8	46.4	46.5	
<u>12/01/93 - 15:00</u>							
pH	5.10	4.85	4.90	5.05	5.83	6.65	6.5-8.5
Specific Conductance	1950	2000	2050	2000	2100	2050	
Temperature	43.1	44.0	44.0	44.2	45.3	45.4	
<u>12/01/93 - 17:00</u>							
pH	4.94	4.97	4.99	5.10	5.65	6.71	6.5-8.5
Specific Conductance	1800	1950	1900	1900	2000	1900	
Temperature	45.0	44.5	44.5	46.2	46.5	46.5	
<u>12/02/93 - 14:30</u>							
pH	4.93	4.95	4.97	4.80	5.55	6.52	6.5-8.5
Specific Conductance	2000	2050	2120	2150	2050	2100	
Temperature	43.1	44.5	44.7	45.0	45.5	44.0	
<u>12/02/93 - 16:00</u>							
pH	5.10	5.05	5.05	5.15	5.75	6.75	6.5-8.5
Specific Conductance	2000	1900	1950	2050	2020	2030	
Temperature	44.4	45.2	45.5	46.0	45.7	45.9	

## NOTES:

pH - unitless

Specific Conductance - units are umhos/cm

Temperature - units are degrees fahrenheit

TABLE 10  
FIELD TESTING RESULTS - AQUEOUS  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

DATA - TIME PARAMETER	T-1 INFLUENT	SP-1 INFLUENT TO AIR STRIPPER	SP-2 INFLUENT TO BAG FILTER 2	SP-3 INFLUENT TO GAC 1	SP-4 INFLUENT TO GAC 2	SP-5 EFFLUENT	DISCHARGE CRITERIA (DAILY MAX.)
<u>12/02/93 - 18:00</u>							
pH	5.01	55.04	5.10	5.15	5.55	6.65	6.5-8.5
Specific Conductance	1800	1850	1850	1700	1900	1950	
Temperature	44.1	44.8	44.7	45.1	45.5	45.6	
<u>12/03/93 - 08:00</u>							
pH	4.94	4.85	5.10	5.15	5.63	6.56	6.5-8.5
Specific Conductance	1750	1800	1810	1800	1850	1830	
Temperature	42.4	42.5	43.5	44.1	44.1	44.5	
<u>12/03/93 - 11:00</u>							
pH	5.03	5.01	5.02	5.05	5.75	6.61	6.5-8.5
Specific Conductance	1600	1750	1770	1800	1810	1850	
Temperature	43.1	44.3	44.5	45.1	45.3	46.1	
<u>12/03/93 - 17:00</u>							
pH	5.12	5.15	5.25	5.20	5.85	6.85	6.5-8.5
Specific Conductance	1330	1350	1340	1370	1400	1350	
Temperature	44.3	44.5	44.6	45.1	45.7	46.2	
<u>12/04/93 - 11:00</u>							
pH	4.81	4.95	4.97	5.10	5.65	6.56	6.5-8.5
Specific Conductance	1650	1770	1800	1850	1800	1900	
Temperature	44.2	44.5	45.0	45.1	45.1	45.5	

## NOTES:

pH - unitless

Specific Conductance - units are umhos/cm

Temperature - units are degrees fahrenheit

TABLE 10  
FIELD TESTING RESULTS - AQUEOUS  
TREATMENT PLANT PERFORMANCE EVALUATION  
NEASE CHEMICAL SITE, SALEM, OHIO

<u>DATA - TIME</u> <u>PARAMETER</u>	<u>T-1</u> <u>INFLUENT</u>	<u>SP-1</u> <u>INFLUENT TO</u> <u>AIR STRIPPER</u>	<u>SP-2</u> <u>INFLUENT TO</u> <u>BAG FILTER 2</u>	<u>SP-3</u> <u>INFLUENT TO</u> <u>GAC 1</u>	<u>SP-4</u> <u>INFLUENT TO</u> <u>GAC 2</u>	<u>SP-5</u> <u>EFFLUENT</u>	<u>DISCHARGE</u> <u>CRITERIA</u> <u>(DAILY MAX.)</u>
<u>12/05/93 - 12:00</u>							
pH	5.15	5.20	5.17	5.20	5.77	6.71	6.5-8.5
Specific Conductance	1400	1350	1370	1420	1360	1390	
Temperature	44.2	44.3	44.4	44.9	44.1	46.1	
<u>12/06/93 - 07:30</u>							
pH	5.02	5.05	5.07	5.15	5.55	6.55	6.5-8.5
Specific Conductance	1700	1650	1670	1720	1750	1730	
Temperature	42.1	43.1	43.1	44.6	45.1	45.5	
<u>12/06/93 - 11:10</u>							
pH	5.19	5.46	6.01	6.33	5.92	6.82	6.5-8.5
Specific Conductance	1420	1340	1180	1170	1030	925	
Temperature	44.8	45.0	45.1	45.6	45.1	44.9	
<u>12/06/93 - 15:30</u>							
pH	5.15	5.30	5.50	6.00	6.15	6.51	6.5-8.5
Specific Conductance	817	823	812	818	812	813	
Temperature	43.9	44.6	45.1	45.4	45.4	45.4	
<u>12/07/93 - 09:00</u>							
pH	4.94	4.95	5.15	5.51	5.85	6.62	6.5-8.5
Specific Conductance	1440	1470	1470	1470	1390	1280	
Temperature	42.8	43.4	44.1	44.0	43.9	43.9	

## NOTES:

pH - unitless

Specific Conductance - units are umhos/cm

Temperature - units are degrees fahrenheit

**TABLE 10**  
**FIELD TESTING RESULTS - AQUEOUS**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

<b>DATA - TIME PARAMETER</b>	<b>T-1 INFLUENT</b>	<b>SP-1 INFLUENT TO AIR STRIPPER</b>	<b>SP-2 INFLUENT TO BAG FILTER 2</b>	<b>SP-3 INFLUENT TO GAC 1</b>	<b>SP-4 INFLUENT TO GAC 2</b>	<b>SP-5 EFFLUENT</b>	<b>DISCHARGE CRITERIA (DAILY MAX.)</b>
<b><u>12/07/93 - 14:00</u></b>							
pH	5.20	5.45	5.50	6.15	6.43	6.76	6.5-8.5
Specific Conductance	899	908	915	914	910	918	
Temperature	42.9	43.4	44.0	44.3	44.3	44.4	
<b><u>12/07/93 - 16:30</u></b>							
pH	5.10	5.21	5.22	5.71	6.15	6.63	6.5-8.5
Specific Conductance	1640	1720	1710	1730	1660	1590	
Temperature	43.0	45.8	46.5	47.2	46.7	47.5	
<b><u>12/08/93 - 08:10</u></b>							
pH	5.15	5.27	5.30	5.53	5.85	6.61	6.5-8.5
Specific Conductance	1310	1200	1250	1260	1500	1670	
Temperature	38.9	40.0	40.5	40.7	40.9	41.6	
<b><u>12/08/93 - 10:00</u></b>							
pH	5.08	5.10	5.15	5.33	5.77	6.56	6.5-8.5
Specific Conductance	1600	1570	1670	1670	1700	1670	
Temperature	40.7	42.2	42.6	42.6	42.3	42.4	

**NOTES:**

pH - unitless

Specific Conductance - units are umhos/cm

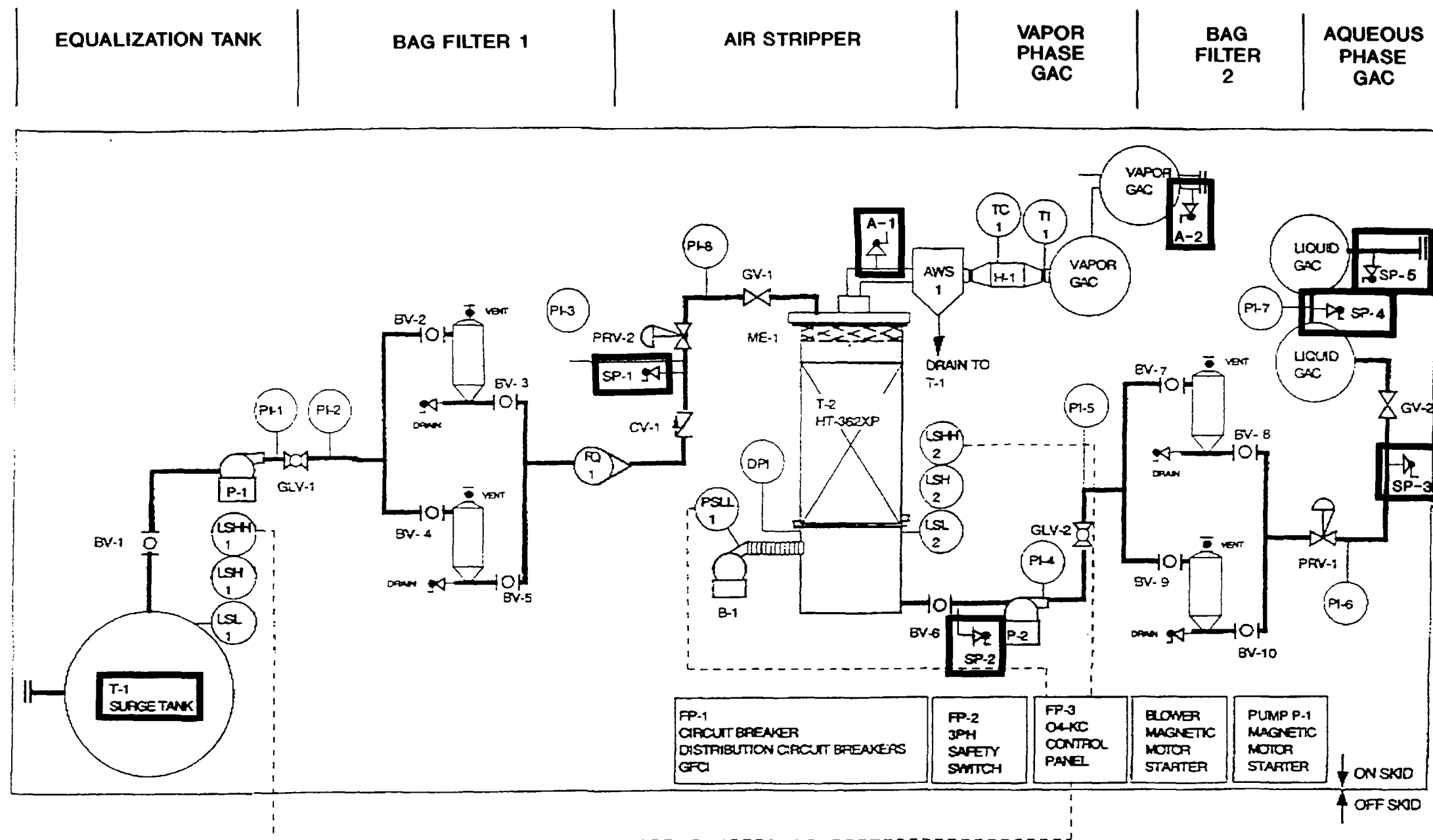
Temperature - units are degrees fahrenheit



**TABLE 11**  
**FIELD TESTING RESULTS - VAPOR PHASE**  
**VOLATILE ORGANIC COMPOUNDS**  
**TREATMENT PLANT PERFORMANCE EVALUATION**  
**NEASE CHEMICAL SITE, SALEM, OHIO**

<b>Date</b>	<b>A-1 Influent to Vapor phase GAC 1</b>	<b>A-2 Effluent from Vapor Phase GAC 2</b>
12/06/93 - 09:00	100	0
12/06/93 - 11:30	55	0
12/06/93 - 15:30	40	0
12/07/93 - 09:00	110	0
12/07/93 - 10:30	31	0
12/07/93 - 14:00	24	0
12/07/93 - 16:30	120	0
12/08/93 - 08:00	0	0
12/08/93 - 10:00	0	0

Note: Vapor phase VOCs were analyzed by the OVA and are reported in ppm.



# LEGEND



SAMPLING LOCATION / PORT

SAMPLE	DESCRIPTION
T-1	SURGE TANK (INFLUENT)
SP-1	INFLUENT TO AIR STRIPPER
SP-2	INFLUENT TO BAG FILTER 2
SP-3	INFLUENT TO LIQUID GAC 1
SP-4	INFLUENT TO LIQUID GAC 2
SP-5	EFFLUENT
A-1	INFLUENT TO VAPOR GAC 1
A-2	EFFLUENT FROM VAPOR GAC 2

FEB 11 1994

SALEM IRM

TREATMENT PLANT  
SAMPLING LOCATIONS

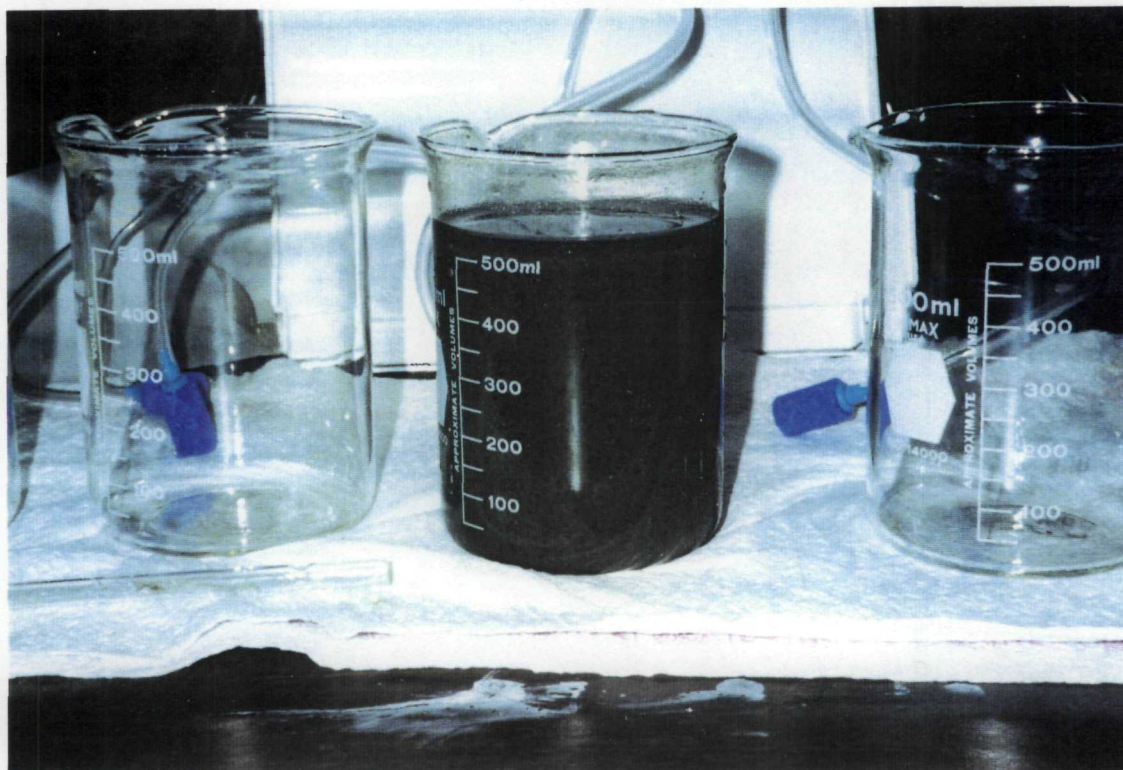
JOB No.:	933-6158	SCALE:	N/A
DR BY:	EAM	DATE:	01/26/94
CHK BY:	<i>YAC</i>	FILE No.:	OH01-244
REV BY:	<i>ESW</i>	DR SUBTITLE:	03

**Golder Associates**

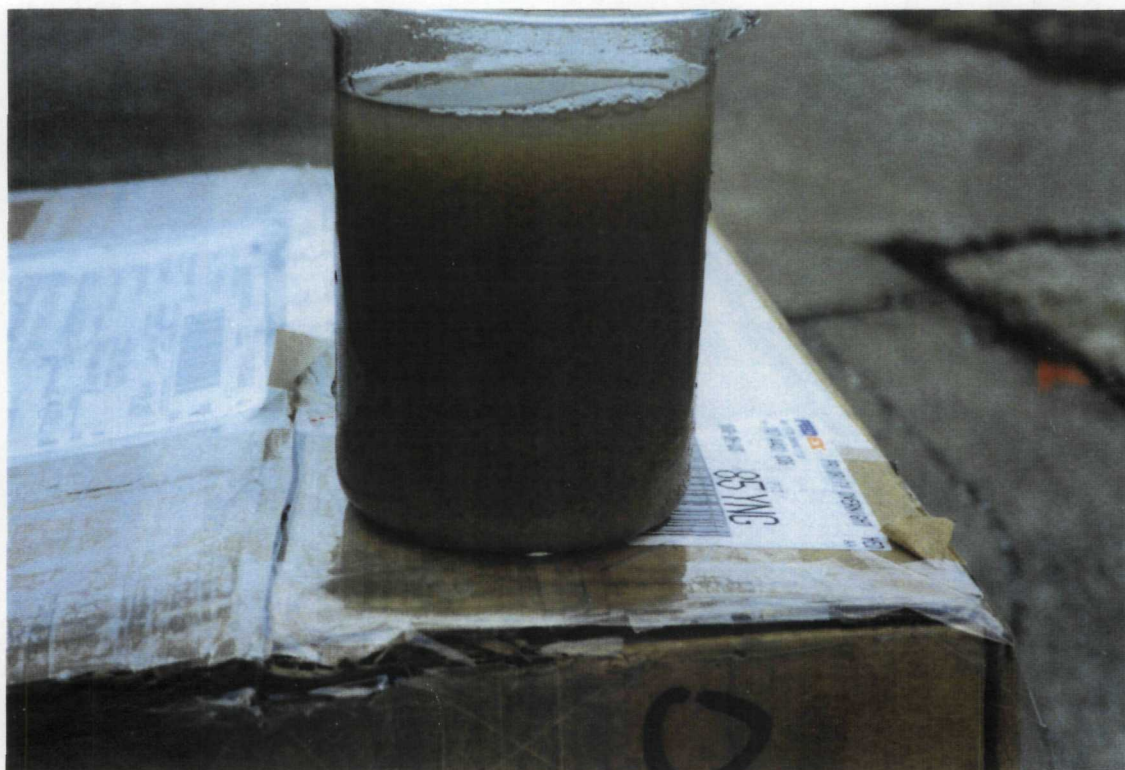
RUETGERS-NEASE CORP.

FIGURE

1



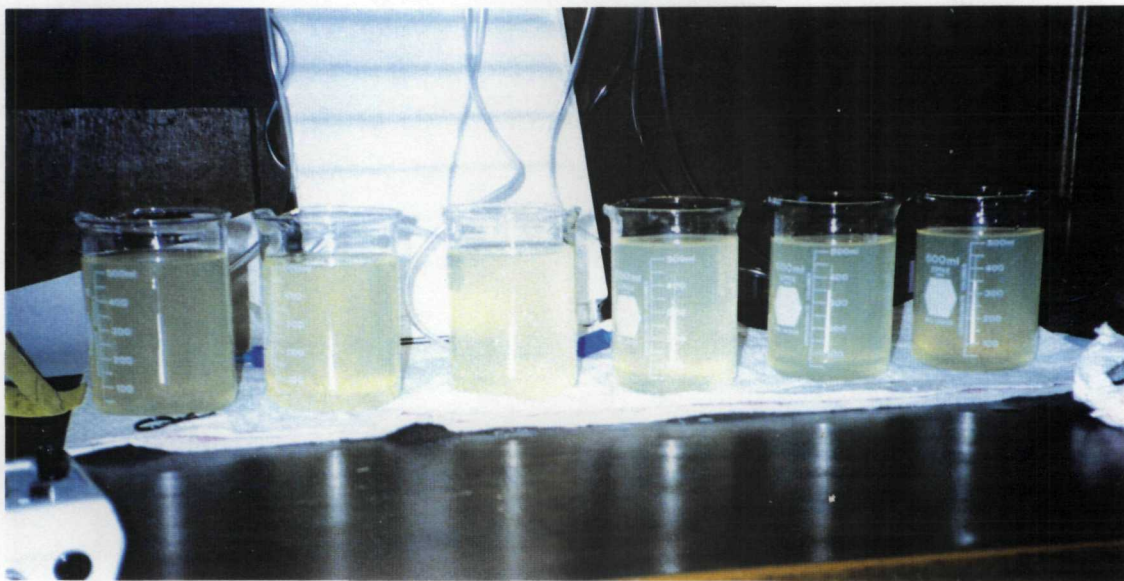
A - FIRST BACKWASH



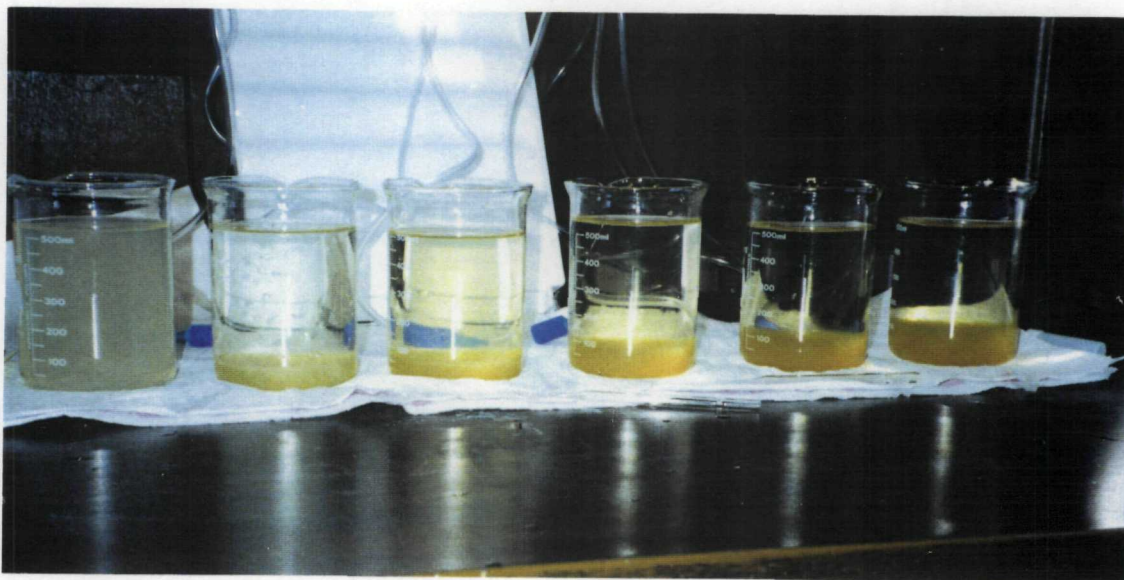
B - SECOND BACKWASH

Figure 2 - GAC 1 BACKWASH EFFLUENT





A - BEFORE pH ADJUSTMENT AND AERATION



B - AFTER pH ADJUSTMENT AND AERATION SHOWING FLOCCULENT SETTLEMENT

### Figure 3 - JAR TESTS

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No.: OH01-246

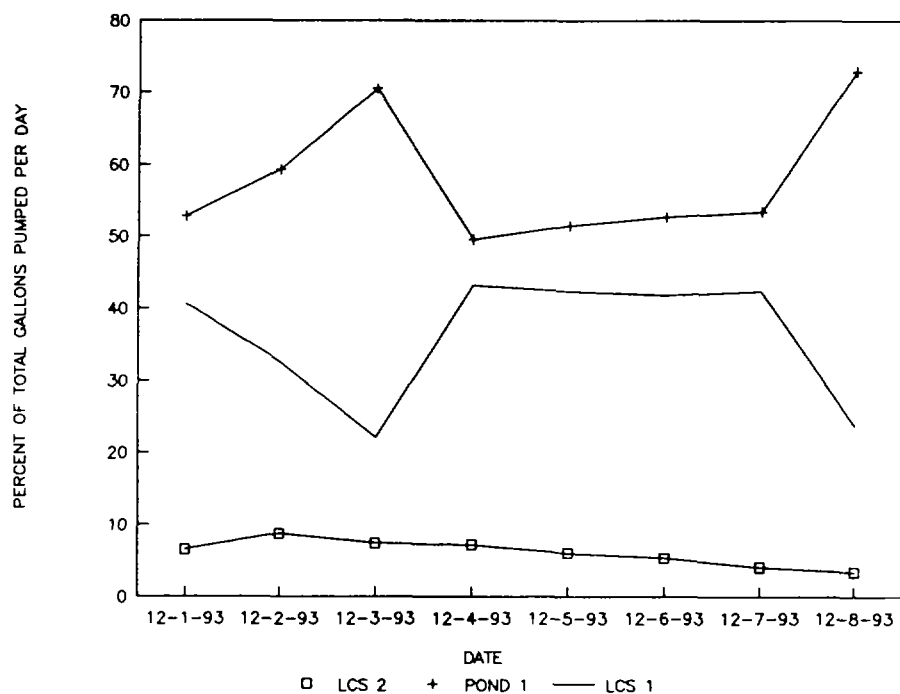
JOB No.: 933-6158

CHK BY: RSW

DR ST: 03

SCALE: N/A

REV BY:



DAY	TOTAL GALLONS	PERCENT TOTAL GALLONS PER DAY		
		LCS 2	POND 1	LCS 1
12-1-93	9,566.5	6.54	52.82	40.64
12-2-93	6,805.1	8.73	59.34	32.52
12-3-93	10,550.6	7.40	70.51	22.09
12-4-93	11,266.3	7.23	49.59	43.18
12-5-93	11,861.0	6.02	51.55	42.43
12-6-93	26,985.3	5.38	52.74	41.88
12-7-93	25,689.9	4.07	53.51	42.41
12-8-93	5,651.3	3.38	72.94	23.67

FEB 11 1994

JOB No.: 933-6158	SCALE: N/A
DR BY: MRM	DATE: 01/27/94
CHK BY: JEC	FILE No.: OH01-247
REV BY: RSW	DR SUBTITLE: 03

# PERCENTAGE FLOW CONTRIBUTION FROM LCS 1, LCS 2 AND POND 1

**Golder Associates**

RUETGERS-NEASE CORP.

FIGURE

**4**

**APPENDIX A**  
**TREATMENT PLANT PERFORMANCE EVALUATION WORK PLAN**  
**(Text and Tables Only)**

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TREATMENT PLANT WORK PLAN  
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## **1.0 INTRODUCTION**

This Treatment Plant Performance Evaluation Work Plan (TPPEWP) was developed at the request of the Ruetgers-Nease Corporation (RNC) to meet the requirements of Paragraph 4c. of the November 17, 1993 Administrative Order by Consent (Removal AOC) for the Nease Chemical Site (Site) in Salem, Ohio. This document identifies and describes the work elements to be completed for a performance evaluation of the existing groundwater treatment plant at the Site. The performance evaluation will be used to determine the ability of the treatment plant to meet the allowable discharge criteria and if appropriate, make recommendations for possible modifications to the plant to more efficiently ensure that effluent levels will continue to meet the discharge criteria.

### **1.1 Facility Information**

This section provides an overview of the operational and administrative history of the Nease Chemical Site. It describes the site location, operation and regulatory history, past investigations, and past remedial actions at the Site.

#### **1.1.1 Site Location**

The Site is located approximately 2.5 miles northwest of the City of Salem, Ohio in northern Columbiana County, near the southern border of Mahoning County (Figure 1). The Site (Figure 2), covering approximately 44 acres, is situated on the north side of State Route 14 and west of Allen Road. It is bordered by a large field to the south, a large wooded area to the north, an industrial facility (Crane-Deming Company) to the northeast, agricultural/residential areas to the northwest, and a residential area to the east. There are a few homes immediately to the east and southeast of the Site. The Site is dissected by Conrail railroad tracks that run southeast-northwest.

The Site is located on a topographic high, the axis of which runs southeast-northwest. The majority of the site slopes to the northeast and drains to the Middle Fork of the Little Beaver Creek (MFLBC). The geology is surficial Wisconsin Age glacial deposits (till, loam, sands) of variable thicknesses and extent, overlying a thick sequence of Middle Pennsylvanian Age sandstones and shales, with limestone and coal interbeds.

### **1.1.2 Site Operations History**

A comprehensive history of site operations can be found in the RI Report (Ruetgers-Nease, 1993). Briefly, from 1961 through 1977, Nease Chemical Company owned and operated a chemical manufacturing plant at the site. At various times during the period of 1961 through 1973, Nease produced a variety of chemical compounds, including household cleaning compounds, fire retardants, pesticides and chemical intermediates used in agricultural, pharmaceutical, and other chemical products.

Products and chemical intermediates were produced in batch processes. Waste generated was neutralized and treated on-site. Five unlined ponds (designated 1, 2, 3, 4, and 7) were used for treatment and storage of either acidic plant waste or lime slurries from neutralization of acidic wastes. After final settling, the neutralized liquid was discharge to the Salem Waste Water Treatment Plant (WWTP) from the late 1960s to 1975. In addition, prior to 1977, some drummed wastes were buried in an area, on-site, which is referred to as Exclusion Area A (Figure 1).

In 1973, Nease discontinued manufacturing operations at the site and subsequently, decided to close the facility permanently. In 1974 and 1975, under Ohio EPA (OEPA) supervision, all buildings and manufacturing equipment were removed from the site, except for a warehouse and two small block buildings. The

five ponds were decommissioned (under OEPA supervision) by Nease in December 1975 pursuant to the 1973 Consent Judgment.

As of December 30, 1977, Nease Chemical Company, Inc. (including the site) was acquired by and merged with Ruetgers Chemical, Inc. The company resulting from the merger is Ruetgers-Nease Chemical Company, Inc. In 1983, the site was placed on the National Priorities List (NPL). The company officially changed its name to Ruetgers-Nease Corporation (RNC) on October 1, 1993.

### 1.1.3 Site Regulation History

The Remedial Investigation/Feasibility Study (RI/FS) AOC of January 1988 required RNC to conduct a remedial investigation (RI) "to determine fully the fact, nature and extent of any release or threatened release of hazardous substances, pollutants or contaminants at and/or from the Facility and to perform a Feasibility Study (FS) to identify and evaluate alternatives for the appropriate extent of remedial action to achieve in offer to comply with applicable or relevant and appropriate requirements, standards, limitations, criteria or goals and/or to prevent or mitigate the migration or release or threatened release of hazardous substances, pollutants, or contaminants from the facility, in accordance with Section 121 of CERCLA."

On April 5, 1991 RNC submitted an original RI report to the agencies. Due to Agency recognized problems (Ruetgers-Nease, 1993), RNC was granted an extension for final submittal of the RI.

On July 6, 1993, RNC submitted to the Agencies a Remedial Investigation Report (Revision #1) in compliance with the established revised deadline. That report presents information obtained from existing data and from the data gathered during the RI field work conducted under the 1988 AOC.

## 2.0 TREATMENT PLANT DESCRIPTION

The treatment plant is a turnkey integrated remediation system (Easypurge Skid-Mounted System) built by NEPCCO. The treatment technologies employed include: physical filtering; air stripping; and liquid and air-phase granular activated carbon units. Suspended solids will be removed from the untreated influent through a series of bag filters. The removal of volatile organic compounds (VOCs) from the influent will be accomplished by the low-profile air stripper and the resulting VOC emissions will be removed via vapor phase carbon. The removal of semi-volatile organic compounds (SVOCs) and pesticides (including mirex, photomirex, and kepone (MPK)) will be accomplished by liquid-phase granular activated carbon (GAC) which will also provide additional removal (polish) of VOCs remaining following air stripping. These technologies are effective, reliable, and widely used, providing a level of acceptability in both their design and planned operation. An additional benefit of this design is its inherent capability to handle variations in the predicted influent concentrations and flow rates while maintaining a high treatment efficiency and providing for some metals removal. The plant is designed to operate at flows of up to approximately 25 gallons per minute (gpm). A schematic layout of the treatment plant is provided as Figure 3. Carbon usage design calculations are provided in Tables 1A and 1B for both the air and liquid phase units, respectively. Carbon usage was calculated using a competitive (multi-compound) adsorption mathematical model. (The codes and model design are proprietary and owned by Mr. David Ainsworth, P.E., thus, it is not possible to provide detailed sample calculations for carbon usage.)

The chemical concentrations used for the initial design of the treatment system were provided to the United States Environmental Protection Agency (USEPA) and OEPA in a letter regarding: Interim Remedial Measures, (IRM) Treatment System - Nease Chemical Superfund Site, Salem, Ohio, from Ruetgers-Nease, dated February 25, 1993 and are shown in Table 2. The influent conditions were

estimated by using the analytical data collected from 1986 and earlier, along with available data including the 1992 USEPA analyses of leachate from the primary leachate collection tank.

### **3.0 TREATMENT PLANT AND DISCHARGE ISSUES**

The treatment plant was designed primarily for the removal of suspended solids, VOCs, and SVOCs (including MPK) from the leachate as discussed in Section 2.0. In June 1993, total metals analytical results from the sampling of the three influent sources indicated that some metals concentrations may exceed discharge criteria as shown in Table 3. (However, these grab sample results may not be representative of the influent stream under steady state pumping conditions.) The presence of metals in the influent has necessitated a re-assessment of the treatment system and discharge locations. The existing treatment plant is expected to remove some metals from the influent and, depending on the level of metals removal, the following options will be evaluated:

1. Maintaining the existing outfall to the golf-course tributary to the MFLBC;
2. Extending the outfall to the MFLBC;
3. Discharging to the Salem Waste Water Treatment Plant (WWTP); and,
4. Enhancing the existing treatment plant for any of the above discharges. Enhancements that may be evaluated include chemical precipitation, greensand filters, ion exchange, etc.

The assessment of potential treatment plant upgrades and various discharge locations will be based on the results of this performance evaluation as well as on the location specific effluent limitations for the protection of environmental receptors, pre-treatment standards, property access, engineering design considerations, and cost.

The first option will be evaluated after the results of the performance evaluation are reviewed. The treatment plant may be capable of achieving the discharge criteria for the golf-course tributary to the MFLBC.

The second option will be evaluated by RNC by looking at the costs associated with the extension of the discharge piping, evaluating access to properties that the pipeline must cross, changing the outfall discharge piping, and preparing a mixing zone analysis report. The purpose of a different outfall pipe design and mixing zone analysis report will be to allow OEPA to set different metals effluent levels which are considered to be protective of the environment.

The third option will be evaluated by RNC by contacting the Salem WWTP and discussing potential discharge to the facility. The existing national pretreatment standards will also be reviewed. Access to install a discharge pipe by continuing along the railroad right-of-way will be evaluated.

The final option will be evaluated if necessary to assess the technology options available to reduce metals concentrations in the treatment plant effluent. This option will add complexity and expense to the operation of the treatment plant as well as the additional time required for design and construction, but may ultimately be more cost effective than the alternative discharge options. Enhancements that may be evaluated include simple modifications to the treatment process, such as an in-line greensand filter, to more complex and expensive process additions such as chemical precipitation and ion exchange.

#### **4.0 WORK PLAN OBJECTIVES**

The overall purpose of the performance evaluation is to assess the effectiveness of the existing treatment plant for removing both organic and inorganic constituents.

The four primary objectives for the study include:

1. To estimate the influent concentrations of organic compounds, metals, and conventional parameters under steady state pumping conditions;
2. To assess the removal efficiency (performance) throughout the treatment system for the constituents of concern;
3. To evaluate the treated effluent concentrations with respect to discharge limits; and,
4. To assess the potential of the treatment plant for the removal of metals.



## **5.0 EXISTING DATA**

### **5.1 Pre-1993 Information**

The pre-1993 organic compound data used for the initial design influent conditions, as stated previously and presented in Table 2, were estimated from data collected from 1986 and earlier, along with 1992 USEPA organic compound analyses of leachate.

### **5.2 Influent Concentration Estimates - Metals**

In June 1993, samples were collected from the leachate collection system for metals analysis and the total metals results are shown in Table 3.

### **5.3 Influent Concentrations Estimates - Organic Compounds**

In July 1993, samples were collected from the leachate collection system for organic compound analysis and the results are shown in Table 4. If each of the sources has equal contribution to the influent, the results indicate VOC concentrations would be anticipated to be about 30 ppm. This result is approximately the same as the results from pre-1993 average analyses. Also, SVOCs, pesticides, and MPK were detected at concentrations presented in Table 4.

### **5.4 Discharge Limits**

In a letter regarding the Nease Chemical Superfund Site, Salem, Columbiana County, Interim Remedial Measures (IRM) Treatment System dated July 13, 1993, the OEPA presented substantive permit limits for the discharge of treated effluent to the golf-course tributary to the MFLBC. These substantive requirements are shown in Table 5. With the treatment plant operating under an executed AOC, the OEPA does not require a Permit to Install nor a National Pollutant Discharge Elimination System (NPDES) permit (to operate), but does require compliance with

the substantive requirements of these permits. Therefore, the discharge limits presented by OEPA (July 13, 1993) will be used to evaluate the effluent concentrations during the performance evaluation of the treatment plant.

## **6.0 PERFORMANCE TEST DESIGN & PROCEDURES**

### **6.1 Performance Evaluation Test**

A performance test of the treatment plant will be conducted over a five (5) day period. The influent will be generated from the Leachate Collection System #1, Leachate Collection System #2, and Pond 1 (Figure 2). The anticipated flow through the treatment plant will be approximately 5 gpm. This flow and duration of testing will produce approximately 36,000 gallons of effluent which will be discharged into the existing holding tank and/or Modtanks for collection and disposal off-site (in a similar manner to existing leachate, see Section 7.6). The test will be conducted in three phases:

- Start-up;
- Performance evaluation operation and sample collection; and,
- Shut-down.

The procedures to be conducted during each of these phases are discussed below and shown in Table 6:

Start-Up - The treatment plant will be started and operated by RNC and will be commissioned as fully operable by the contractors who built and installed the plant prior to the performance evaluation.

Performance Evaluation Test - The performance evaluation will commence after the start-up period. The evaluation will be conducted for an anticipated time of five (5) days, or total hourly equivalent. The duration of the test will allow for evaluation of variations in the influent quality and the ability of the treatment system to handle these variations. Samples will be collected on the first, third, and fifth days, or their hourly equivalent, during the test. Sample locations and

analysis (see Section 9.2) have been determined for their use in the evaluation of the plant performance.

At the commencement of the performance evaluation operation, influent samples will be collected from the surge tank, T-1 (see Figure 3). The residence time throughout the plant has been estimated based on the hydraulics of the system. At pre-determined time intervals based on residence time of each of the system components and piping, samples will be collected at each of the following locations throughout the plant:

<u>Estimated Sample</u>	<u>Description</u>	<u>Collection Time (min.)</u>
T-1	Surge Tank (Influent)	0
SP-1	Influent To Air Stripper	2
SP-2	Influent to Bag Filter 2	24
SP-3	Influent To Liquid GAC 1	26
SP-4	Influent To Liquid GAC 2	43
SP-5	Effluent	60
A-1	Influent To Vapor GAC 1	
A-2	Effluent From Vapor GAC 2	

During the performance evaluation period, the pressure gauges on the GAC units will be monitored to assess potential clogging by metals build-up on the GACs.

Shutdown - The treatment plant will be turned off while the performance of the system is under evaluation. The liquid GAC will be assessed for metals build-up. A small diameter soil auger will be used to take one core sample of the carbon in each of the GAC units. Visual inspection of the core samples will be conducted to determine if metals fouling has occurred.

## 6.2 Sampling and Analysis

The sampling and analytical methodologies used during the performance evaluation are presented in Table 7. Detailed descriptions of field sampling methodologies are provided in the FSP (Section I, Volume 2), and analytical methodologies, including Standard Operating Procedures (SOPs) for each laboratory involved in this investigation are provided in the QAPjP (Section II, Volume 2) of the Removal Action Work Plan.

Samples for laboratory analysis will be collected at all locations approximately one-half to three (3) hours after start-up on Day 1, at the mid-way point of the test, and just prior to shutdown on Day 5. At each sampling point throughout the treatment plant, samples will be taken directly from in-line sample ports into the respective containers. The sampling locations and laboratory and field analyses will be carried out as summarized in Table 8A and 8B, respectively. Sample containers, preservatives, and holding times which apply during sampling and analysis are summarized in Table 9.

The analytical procedures for this performance evaluation include SW846 Methodologies for VOCs, SVOCs (including 3,4-dichloronitrobenzene and diphenyl sulfone), pesticides, and filtered and unfiltered metals. Mirex, photomirex, and kepone will be analyzed utilizing GC/MS with the Pulsed Positive Negative Ion Chemical Ionization (PPNICI) Version 4.1 detection system (as per the Approved RI Work Plan, 1990). Conventional parameters such as pH, specific conductance, etc., will be analyzed as per the Approved RI Work Plan, 1990. The acute toxicity tests will be performed for both *Ceriodaphnia dubia* and *Pimephales promelas* by the 48-Hour Static Daily Non-Renewal Definitive Bioassay. The chronic toxicity tests will be performed by a 7-day *Ceriodaphnia dubia* survival and reproduction test and a 7-Day fathead minnow, *Pimephales promelas*, survival and growth test. Specific conductance, pH, temperature, and vapor phase VOCs will be analyzed in the

field. Iron will be analyzed in the field by a Hach Kit (or equivalent). Vapor phase VOCs will be analyzed with an Organic Vapor Analyzer (OVA) (or equivalent).

### **6.3 Data Validation**

Validation of analytical results will be carried out to satisfy the Data Quality Objectives provided in Tables 10 and 11.

## **7.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

Issues related to QA/QC, such as calibration, performance and system audits, procedures to assess data precision, etc., are included in the SOP's (see QAPjP, Section II, Volume 2). Each of the participating laboratories have their own QA/QC programs and reporting and corrective action procedures. The laboratory protocols, QA/QC measures, validation, and reporting requirements will be consistent with those specified under the NPDES. The sampling and data quality objective summary is presented in Tables 10 and 11. This section provides a description of the field and laboratory analytical procedures that will be adhered to during the implementation of this performance evaluation Work Plan. This section is subdivided into detailed sample collection protocol, sample location and identification procedures, field equipment decontamination protocol, and field QA/QC sampling.

### **7.1 Detailed Sample Collection Protocol**

At each sampling point throughout the treatment plant, samples will be collected directly from the sample port into the appropriate container. The appropriate preservatives will added to the containers before or after the samples have been collected, depending on laboratory preferences or protocols as described in Table 9.

### **7.2 Sample Location and Identification Procedures**

Sample collection and identifications are presented in Section 6.1. To provide control and tracking of sample results, specific sample location and identification procedures will be observed. Field sample identification labeling will include, at a minimum:

- Site name;
- Sample identification;
- Analysis to be performed;
- Collection date;
- Collection time; and,
- Samplers' initials.

Each sampling location in the treatment plant will be marked. In the unlikely event that field conditions necessitate moving a planned sampling location, the USEPA shall be notified for approval and the new location will be described in the sampling team's field log book.

### **7.3 Field Equipment Decontamination Procedures**

Samples will be collected directly from the sample ports and it is expected, therefore, that field sampling equipment will not be needed. Sample containers are supplied directly from laboratories in a state that is ready for sampling.

### **7.4 Field QA/QC**

To ensure the integrity of sampling, a field duplicate will be collected from the influent sample location for all analyses except the toxicity testing. To evaluate spike recovery and duplicate reproducibility, a matrix spike/matrix spike duplicate (MS/MSD) sample will be collected for all analyses (except toxicity testing as indicated in Table 7) and submitted to the laboratory. MS/MSD samples will be collected from the effluent (SP-5) on Day 3. Constituent recovery in the effluent is critical to verify that the effluent meets the substantive discharge criteria.



## **7.5 Field Documentation/Sample Shipment**

The activities conducted as part of this performance evaluation will be documented by field personnel in bound logbooks. Information recorded in log books will include, at a minimum, the following:

- name of person keeping the logbook and personnel at the site;
- location and name of the site;
- time of arrival and departure from the site;
- date and time of all entries;
- field instrument calibration information;
- sample collection information, including:
  - date and time of sample collection;
  - sample matrix and physical description;
  - sample identification;
  - number and volume of containers collected;
  - analyses for which sample is submitted; and,
  - field information readings;
- additional field observations.

Additionally, chain-of-custody forms will be completed and will accompany the samples to the laboratory to ensure sample integrity.

## **7.6 Treatment Plant Residuals Handling**

The operation (flow and duration) of the treatment plant during the performance evaluation will generate aqueous effluent (approximately 36,000 gallons) which will be discharged into the existing holding tank and/or Modtanks for collection and disposal off-site (in a similar manner to the present disposal of the leachate).

Although the duration of the performance evaluation is not expected to result in expending the GAC or bag filters, the proper handling and disposal of residuals will be addressed in the operations and maintenance manual for the treatment plant (to be submitted). Should bag filters require disposal, then RNC will arrange, through its hazardous waste haulage contractor, to remove and transport the bag filters to an appropriately licensed disposal facility. The core samples of the GAC unit will be returned to the respective GAC unit upon completion of visual inspection.

## **8.0 HEALTH AND SAFETY**

The Health and Safety Plan (HSP) for this investigation is provided in Section III, Volume 2 of the Removal Action Work Plan. The HSP is per the Remedial Investigation Work Plan (ERM-Midwest, 1990), and as modified by Addendum to Section III, Volume 2, will apply to all work conducted pursuant to the performance evaluation of the on-site leachate treatment system, Nease Chemical Site.

## **9.0 EVALUATION**

### **9.1 Analytical Results**

The analytical results summary obtained from the laboratory will be subjected to data evaluation. This will involve review of the data for errors, omissions, spike recoveries, and duplications. Also, the data will be reviewed to determine if the Data Quality Objectives presented in Table 10 were achieved. The analytical results will be tabulated for presentation and used to evaluate the performance of the plant, comparison of results to the discharge criteria, and determining removal efficiencies as discussed in Section 9.2.

### **9.2 Removal Efficiencies**

The removal efficiencies will be determined for various operational phases of the treatment plant. The removal efficiency (or percent removal) of a particular process unit will be determined by subtracting the concentration of the constituent after the process unit from the concentration before the process unit and dividing that by the concentration before the process unit times 100. An example calculation (for removal efficiency of VOCs by the air stripper) is as follows:

$$\frac{\text{Conc. of VOCs in SP-1} - \text{Conc. of VOCs in SP-2}}{\text{Conc. of VOCs in SP-1}} \times 100 = \% \text{ Removal}$$

- Sample T-1 will be used to determine influent quality;
- Sample SP-1 will be used to assess the removal efficiency of solids and metals through bag filter 1;
- Sample SP-2 will be used to assess the removal efficiency of volatiles by the air stripper and the metals concentration will be measured to evaluate precipitation potential;

- Sample SP-3 will be used to assess the removal efficiency of metals by bag filter 2 that were oxidized in the air stripper to an insoluble state;
- Sample SP-4 will be used to assess the removal of SVOCs, pesticides, and MPK;
- Sample SP-5 will be used to assess overall effluent quality in terms of discharge limits with an emphasis on metals removal; and,
- Samples A-1 and A-2 will be used to verify air-phase treatment efficiency.

### **9.3 System Operations**

The pressure across the carbons beds will be recorded in the field logbook and the core samples of carbon will be visually inspected for metals fouling. This information will show for metals whether pre-treatment or an additional treatment technology will need to be incorporated into the treatment plant. Detailed evaluation of carbon usage rates for metals will not be undertaken. Calculations of carbon usage rates (Tables 1A and 1B) indicate that breakthrough for organic compounds will not occur. However, monitoring will be used to confirm that breakthrough has not occurred during the test.

## **10.0 SCHEDULE AND REPORTING**

The results of the tests, interpretation of the data and assessment of the plant performance parameters will be summarized and reported as the Treatment Plant Performance Evaluation Report (TPPER). It is anticipated that the TPPER will provide the following:

- a description of the treatment plant as tested;
- a record of the procedures used in the conductance of the performance evaluation indicating start-up time, duration, shutdown time, interruptions, modifications or adjustments made, and flow rates, etc.;
- a detailed chronology of sampling times, types, frequency, and any difficulties encountered;
- a description of the analytical results, evaluation procedures, and findings as outlined in Section 6;
- a concise presentation of influent and effluent concentrations throughout the test;
- a comparison of effluent concentrations versus discharge criteria; and,
- conclusions regarding removal efficiencies, carbon evaluation, achievement of Work Plan objectives, attainment of discharge criteria, and recommendations.

## REFERENCES

1. Administrative Order by Consent pursuant to Section 106 of CERCLA, between United States Environmental Protection Agency, Region V and Ruetgers-Nease Chemical Company, Inc. (Respondent). Effective date November 17, 1993.
2. ERM-Midwest, Inc. 1990, "Remedial Investigation and Feasibility Study Work Plan, Ruetgers-Nease Salem, Ohio Site", Revision 4, February 28, 1990.

**TABLE 1A**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**CALCULATIONS OF PREDICTED**  
**AIR PHASE CARBON USAGE (1)**

Compound	Mol. wt.	ppm (v/v)	Sorption (w/w)	Carbon Saturated (lb/hr)
Vinyl Chloride(2)	62.50	2.09E+01	9.35E-01	5.029
1,1-Dichloroethene	96.94	6.12E-01	1.55E+00	0.157
1,2-Dichloroethene	96.94	3.41E+01	1.51E+01	0.918
Chloroform	119.38	2.28E+00	7.04E+00	0.162
1,2-Dichloroethane	98.96	7.20E+01	3.10E+01	0.961
1,1,1-Trichloroethane	133.41	1.33E-01	7.26E+00	0.010
1,2-Dichloropropane	112.99	2.89E-01	1.04E+01	0.013
1,3-Dichloropropene	112.99	1.57E-01	8.40E+00	0.009
Trichloroethene	131.39	2.17E+01	3.46E+01	0.344
Benzene	78.12	1.60E+02	3.14E+01	1.668
1,1,2,2-Tetrachloroethane	167.85	4.72E+01	8.45E+01	0.392
Tetrachloroethene	165.83	1.59E+01	6.08E+01	0.182
Toluene	92.15	1.84E+01	3.08E+01	0.168
Chlorobenzene	112.56	6.19E+00	3.73E+01	0.078
Ethylbenzene	106.17	2.51E-01	2.23E+01	0.005
Xylenes (total)	106.17	3.46E+00	3.65E+01	0.042
Dichlorobenzenes (total)	147.01	181E+02	8.88E+01	1.252
		5.80E+02		12.189

**Notes:**

- (1) The air-phase carbon usage calculations were provided to the agencies in the Interim Remedial Measures, (IRM) Treatment System - Nease Chemical Superfund Site, Salem, Ohio letter dated February 25, 1993. These calculations were performed using a proprietary computer model owned by Mr. David Ainsworth, P.E.
- (2) As indicated to EPA in previous correspondence from Ruetgers-Nease (November 20, 1991), it is unlikely that vinyl chloride will be entirely removed by the air-phase GAC.



**TABLE 1B**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**CALCULATIONS OF PREDICTED  
LIQUID PHASE CARBON USAGE (1)**

Compound	Isotherm	Constants	Conc. (ug/L)	Sorption (W/W)	Carbon (lb/million gal.)
Vinyl chloride	5.90E-01	9.50E-01	5.60E+00	8.56E-04	5,456.67
1,2-Dichloroethene	4.91E+00	5.40E-01	6.00E-01	8.94E-03	56.01
1,1-Dichloroethene	3.05E+00	5.10E-01	5.80E+01	7.14E+01	477.92
Chloroform	2.60E+00	7.30E-01	2.30E+00	3.08E-03	622.43
1,2-Dichloroethane	3.57E+00	8.30E-01	1.55E+01	1.12E-02	2,151.02
1,1,1-Trichloroethane	2.48E+00	3.40E-01	1.00E-01	1.08E-02	7.71
1,2-Dichloropropane (2)	5.86E+00	6.00E-01	1.00E-01	2.33E-03	35.77
1,3-Dichloropropene	5.86E+00	6.00E-01	1.00E-01	2.33E-03	35.77
Trichloroethene	2.80E+01	6.20E-01	1.14E+01	1.75E-01	54.43
Benzene	2.29E+01	4.08E-01	4.16E+01	6.26E-01	55.47
1,1,2,2-Tetrachloroethane	1.06E+01	3.70E-01	2.10E+01	2.03E-01	45.01
Tetrachloroethene	5.08E+01	5.60E-01	3.70E+00	2.22E-01	13.98
Toluene	4.70E+01	3.30E-01	3.80E+00	7.47E-01	4.24
Chlorobenzene	9.10E+01	9.90E-01	2.20E+00	2.13E-02	86.25
Ethylbenzene	5.30E+01	7.90E-01	3.00E-01	8.73E-03	26.65
Xylenes (total)	7.00E+01	5.50E-01	2.00E-01	6.47E-02	2.58
Dichlorobenzenes (total)	1.29E+02	4.20E-01	1.50E+02	5.83E+00	22.60
Methoxychlor (2)	3.22E+02	5.00E-01	3.80E+00	2.01E+00	1.62
Mirex (2)	No data		8.30E-01	4.00E-01	1.82
Diphenyl Sulfone (2)	No data		7.80E+03	1.00E+01	484.10
Misc. (2)	No data		7.00E+02	1.00E+00	484.11
			8.82E+03		9,581.28

**Notes:**

- (1) The air-phase carbon usage calculation were provided to the agencies in the interim Remedial Measures, (IRM) Treatment System - Nease Chemical Superfund Site, Salem, Ohio letter dated February 25, 1993. These calculations were performed using a proprietary model owned by Mr. David Ainsworth, P.E.
- (2) Isotherm data not available for this compound, a similar compound, when available, or best engineering estimate was used for computation.

**TABLE 2**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**ANTICIPATED INFLUENT CHEMICAL CONCENTRATIONS (1)**

Parameter	Average Concentration	Maximum Concentration	NPDES Limit (2)
<b>Volatile Organics</b>	<b>(mg/L)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
Vinyl Chloride	0.56	4.40	<0.005
1,1-Dichloroethene	0.06	0.20	<0.005
1,2-Dichloroethene	5.80	11.16	<0.005
Chloroform	0.23	0.92	<0.005
1,2-Dichloroethane	1.55	24.04	<0.005
1,1,1-Trichloroethane	0.01	0.06	<0.005
1,2-Dichloropropane	0.01	0.11	<0.005
1,3-Dichloropropene	0.01	0.06	<0.005
Trichloroethene	1.14	9.60	<0.005
Benzene	4.16	42.24	<0.005
1,1,2,2-Tetrachloroethane	1.18	26.73	<0.005
Tetrachloroethene	0.37	8.91	<0.005
Toluene	0.38	4.19	<0.005
Chlorobenzene	0.22	2.35	<0.005
Ethylbenzene	0.03	0.09	<0.005
Xylenes (total)	0.02	1.24	<0.005
Dichlorobenzene (total)	15.80	89.78	<0.005
<b>Total VOCs</b>	<b>31.53</b>	<b>226.08</b>	
<b>Non-Volatiles</b>	<b>(ug/L)</b>	<b>(ug/L)</b>	<b>(ug/L)</b>
Methoxychlor	3.9	4.2	<0.1
Mirex	0.23	14.6	0.0022
3,4-Dichloronitrobenzene	ND	888.89	<100
Diphenyl Sulfone	7,600	16,777.78	<100
Unknowns (10%)	700	3537.22	
<b>Total Non-VOCs</b>	<b>8304.13</b>	<b>21,222.69</b>	

**Notes:**

- (1) The anticipated concentrations were provided to the agencies in the Interim Remedial Measures, (IRM) Treatment System - Nease Chemical Superfund Site, Salem, Ohio letter dated February 25, 1993. Also, this information was from the 1989 Leachate Report and the Design Report for the Leachate Collection and Management System and the Surface Water and Sediment Control, Revision 2, November 1990.
- (2) Substantive permit levels from Ohio EPA to Ruetgers-Nease in a Letter dated July 13, 1993.

**TABLE 3**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**INFLUENT SOURCE SAMPLING**  
**RESULTS OF TAL METALS**  
**JUNE 1993**

Metal	Metals Concentrations (2)			Anticipated Influent Conc. (4)	NPDES LIMIT (3)
	LCS1	LCS2	Pond 1		
Aluminum	0.4	304	ND	101	--
Antimony	ND	ND	ND	ND	0.19
Arsenic	0.02	0.03	ND	0.02	0.19
Barium	0.4	0.3	ND	0.23	--
Beryllium	ND	ND	ND	ND	0.1
Cadmium	ND	ND	ND	ND	0.0029
Calcium	142	527	119	263	--
Chromium	ND	0.08	ND	0.03	0.440
Cobalt	ND	0.4	ND	0.13	--
Copper	ND	0.08	ND	0.03	0.027
Iron	39.4	159	0.1	66.2	--
Lead	ND	0.04	ND	0.013	0.022
Magnesium	25.6	211	18.6	85.1	--
Manganese	5.47	34.8	0.10	13.5	--
Mercury	ND	ND	ND	ND	0.000012
Nickel	0.06	0.93	ND	0.33	0.38
Potassium	3.1	21.8	3.4	9.43	--
Selenium	ND	ND	ND	ND	--
Silver	ND	ND	ND	ND	0.015
Sodium	112	438	17.1	189	--
Thallium	ND	ND	ND	ND	0.016
Vanadium	ND	0.4	ND	0.13	--
Zinc	0.05	2.92	0.2	1.06	0.51
Cyanide	ND	0.013	ND	0.003	0.012

## Notes:

- (1) LCS1 = Leachate Collection System 1 and LCS2 = Leachate Collection System 2.
- (2) Concentrations are reported in mg/L.
- (3) Substantive permit levels from Ohio EPA to Ruetgers-Nease  
in a Letter dated July 13, 1993. "--" denotes no limit given in the letter.
- (4) Anticipated influent concentrations are based on an equal contribution  
from each influent source.

**TABLE 4**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**INFLUENT SOURCE SAMPLING ANALYTICAL RESULTS**  
**JULY 1993**

Analyte	LCS1	LCS2	Pond 1	NPDES Limit (2)
<b>Volatile Organics</b>	<b>(mg/L)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>	<b>(mg/L)</b>
Chloromethane	ND	0.180	ND	--
Vinyl Chloride	0.077	0.040	ND	<0.005
Chloroethane	ND	0.002(J)	ND	--
Carbon Disulfide	ND	0.040	ND	--
1,1-Dichloroethene	0.008(J)	0.005(J)	ND	<0.005
1,2-Dichloroethene (Total)	1.2(D)	0.065	0.002(J)	<0.005
Chloroform	0.050	0.280(JD)	ND	<0.005
1,2-Dichloroethane	0.061	11.0(D)	ND	<0.005
Carbon Tetrachloride	ND	0.310(JD)	ND	--
Bromodichloromethane	ND	0.010(J)	ND	--
1,1,2,2-Tetrachloroethane	0.160	28.0(D)	0.006(J)	<0.005
1,2-Dichloropropane	ND	0.010(J)	ND	<0.005
Trichloroethene	0.570	8.9(D)	0.004(J)	<0.005
Dibromochloromethane	ND	0.098	ND	--
1,1,2-Trichloroethane	0.019	0.110	ND	<0.005
Benzene	0.110	23.0(D)	ND	<0.005
Bromoform	ND	0.440(JD)	ND	--
4-Methyl-2-Pentanone	ND	0.025	ND	--
Tetrachloroethene	0.780	17.0(D)	0.015	<0.005
Toluene	0.046	2.7(D)	ND	<0.005
Chlorobenzene	0.074	1.2(JD)	0.002(J)	<0.005
Ethylbenzene	0.008(J)	0.061	ND	<0.005
Total Xylenes	ND	0.270	ND	<0.005
<b>Total VOCs</b>	<b>3.16</b>	<b>93.75</b>	<b>0.029</b>	

**Notes:**

(1) LCS1 = Leachate Collection System 1, LCS2 = Leachate Collection System 2, and POND 1

(2) Substantive permit levels from Ohio EPA to Ruetgers-Nease in a Letter dated July 13, 1993. "--" denotes no limit given by Ohio EPA.

(3) ug/L = parts per billion and pg/L = parts per quadrillion

(4) Data Qualifiers: J - Value was below quantitation limit

D - Value was from a diluted sample. E - Value exceeded calibration range.

P - Concentrations between GC columns varied by more than 25%.

I - Quantitation using the recovery internal standard, 13C-PCB.

X - Presence of the compound is strongly indicated, but the ion ratio criteria were not met for the confirmation ions.

Y - Presence of the compound is strongly indicated, but not all ions were present.

**TABLE 4**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**INFLUENT SOURCE SAMPLING ANALYTICAL RESULTS**  
**JULY 1993**

Analyte	LCS1	LCS2	Pond 1	NPDES Limit (2)
<b><u>Semi-volatile Organics</u></b>	<b><u>(ug/L)</u></b>	<b><u>(ug/L)</u></b>	<b><u>(ug/L)</u></b>	<b><u>(ug/L)</u></b>
Phenol	1(J)	76	ND	--
2-Chlorophenol	1(J)	ND	ND	--
1,3-Dichlorobenzene	1(J)	ND	ND	<5.0
1,4-Dichlorobenzene	5(J)	88(E)	1(J)	<5.0
1,2-Dichlorobenzene	1(J)	9,500(D)	12	<5.0
N-nitroso-di-n-propylamine	ND	ND	1(J)	--
Hexachloroethane	ND	110(E)	ND	--
2,4-Dimethylphenol	ND	2(J)	ND	--
2,4-Dichlorophenol	ND	180(E)	ND	--
2-Nitroaniline	ND	20	ND	--
4-Nitrophenol	1(J)	ND	1(J)	--
Diethylphthalate	1(J)	ND	ND	--
Butylbenzylphthalate	1(J)	ND	1(J)	--
Diphenylsulfone	60	2,800(D)	ND	<100
3,4-Dichloronitrobenzene	ND	ND	ND	<100
<b><u>Total SVOCs</u></b>	<b><u>76</u></b>	<b><u>12,776</u></b>	<b><u>16</u></b>	
<b><u>Pesticides</u></b>	<b><u>(ug/L)</u></b>	<b><u>(ug/L)</u></b>	<b><u>(ug/L)</u></b>	<b><u>(ug/L)</u></b>
gamma-BHC (Lindane)	ND	1.7(P)	ND	--
Aldrin	ND	ND	0.01(JP)	--
Dieldrin	0.023(JP)	ND	0.016(JP)	--
Endrin	ND	ND	0.078(P)	--
4,4'-DDD	0.031(JP)	0.19(P)	0.038(JP)	--
Methoxychlor	0.53	ND	0.29(JP)	0.1
Endrin Aldehyde	ND	2.02(PD)	0.71(P)	--
alpha-Chlordane	ND	0.47(P)	0.042(J)	--
<b><u>Total Pesticides</u></b>	<b><u>0.584</u></b>	<b><u>4.35</u></b>	<b><u>1.184</u></b>	

**Notes:**

- (1) LCS1 = Leachate Collection System 1, LCS2 = Leachate Collection System 2, and POND 1
- (2) Substantive permit levels from Ohio EPA to Ruetgers-Nease in a Letter dated July 13, 1993. "--" denotes no limit given by Ohio EPA.
- (3) ug/L = parts per billion and pg/L = parts per quadrillion
- (4) Data Qualifiers: J - Value was below quantitation limit  
D - Value was from a diluted sample. E - Value exceeded calibration range.  
P - Concentrations between GC columns varied by more than 25%.  
I - Quantitation using the recovery internal standard, 13C-PCB.  
X - Presence of the compound is strongly indicated, but the ion ratio criteria were not met for the confirmation ions.  
Y - Presence of the compound is strongly indicated, but not all ions were present.

**TABLE 4**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**INFLUENT SOURCE SAMPLING ANALYTICAL RESULTS**  
**JULY 1993**

Analyte	LCS1	LCS2	Pond 1	NPDES Limit (2)
<b>MPK</b>	<u>(ug/L)</u>	<u>(ug/L)</u>	<u>(ug/L)</u>	<u>(ug/L)</u>
Mirex	7.6	4.27	1.07	0.0022
Photomirex	0.157	0.0393(I,J,Y)	0.0648(X)	--
Kepone	0.0534(J)	0.159(I)	0.0113(J)	--
<b>Cyanide (ug/L)</b>	ND	12.9	ND	12.0
<b>Dioxins/Furans</b>	<u>(pg/L)</u>	<u>(pg/L)</u>	<u>(pg/L)</u>	
1,2,3,4,6,7,8,9-OCDD	174	ND	ND	--
Total TCDF	ND	96.4	ND	--

## Notes:

- (1) LCS1 = Leachate Collection System 1, LCS2 = Leachate Collection System 2, and POND 1
- (2) Substantive permit levels from Ohio EPA to Ruetgers-Nease in a Letter dated July 13, 1993. "--" denotes no limit given by Ohio EPA.
- (3) ug/L = parts per billion and pg/L = parts per quadrillion
- (4) Data Qualifiers: J - Value was below quantitation limit
  - D - Value was from a diluted sample. E - Value exceeded calibration range.
  - P - Concentrations between GC columns varied by more than 25%.
  - I - Quantitation using the recovery internal standard, 13C-PCB.
  - X - Presence of the compound is strongly indicated, but the ion ratio criteria were not met for the confirmation ions.
  - Y - Presence of the compound is strongly indicated, but not all ions were present.

**TABLE 5**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**TREATMENT PLANT DISCHARGE LIMITS (1)**

Parameter	Discharge Limitations		Monitoring Requirements	
	Conc. (2)	Loading (kg/day)	Meas. Freq.	Samp. Type
BOD5 (mg/L)	---	---	1/month	grab
COD (mg/L)	---	---	1/month	grab
TOC (mg/L)	---	---	1/month	grab
oil and grease, total	<3		1/month	grab
residue, total				
nonfilterable (mg/L)	<3	<.41	1/month	grab
flow	25 gpm		daily	24hr
nitrogen, ammonia				
NH3 (mg/L)	1.1	0.15	1/month	grab
Temp	---	---	1/month	grab
pH	6.5 - 9.0		1/month	grab
chloroform	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
toluene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
benzene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
PAHs	3.85	5.25 x 10 <sup>-4</sup>	1/month	grab
anthracene	---	---	1/month	grab
butylbenzylphthalate	---	---	1/month	grab
methylene chloride	---	---	1/month	grab
1,1-dichloroethylene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,1,1-trichloroethane	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,1,2,2-tetrachloroethane	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,2-dichloroethane	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,2-dichlorobenzene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,3-diclorobenzene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,2-dicloropropane	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
trans-1,2-dichloroethylene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
1,4-dichlorobenzene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
Di-N-Butyl Phthalate	---	---	1/month	grab
vinyl chloride	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
trichloroethylene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
methoxychlor	<0.1	1.4 x 10 <sup>-5</sup>	1/month	grab
TUa ceriodaphnia	1.0	---	1/month	grab
acute toxicity				
TUc ceriodaphnia	2.3	---	1/month	grab
chronic toxicity				
TUa pimephales promelas	1.0	---	1/month	grab
acute toxicity				

**TABLE 5**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**TREATMENT PLANT DISCHARGE LIMITS (1)**

Parameter	Discharge Limitations		Monitoring Requirements	
	Conc. (2)	Loading (kg/day)	Meas. Freq.	Samp. Type
TUc pimephales promelas chronic toxicity	2.3	---	1/month	grab
dimethyl phthalate	---	---	1/month	grab
ethylbenzene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
methyl chloride	---	---	1/month	grab
tetrachloroethylene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
phenol, total	---	---	1/month	grab
naphthalene, total	---	---	1/month	grab
chlorobenzene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
o-xylene	---	---	1/month	grab
1,3-dichloropropylene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
benzoic acid	---	---	1/month	grab
p-xylene	---	---	1/month	grab
2-butanone	---	---	1/month	grab
4-methylphenol, total	---	---	1/month	grab
halomethanes, sum of	---	---	1/month	grab
acetone, total	---	---	1/month	grab
m-xylene	<5	<6.8 x 10 <sup>-4</sup>	1/month	grab
carcinogen, activity factor	1.0 (max)	---	1/month	grab
2-methylnaphthalene	---	---	1/month	grab
3,4-dichloronitrobenzene	<100	0.014	1/month	grab
diphenyl sulfone	<100	0.014	1/month	grab
mirex	0.0022	3.0 x 10 <sup>-7</sup>	1/month	grab
photomirex	---	---	1/month	grab
kepone	---	---	1/month	grab



**TABLE 5**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**TREATMENT PLANT DISCHARGE LIMITS (1)**

Parameter	Discharge Limitations		Monitoring Requirements	
	Conc. (2)	Loading (kg/day)	Meas. Freq.	Samp. Type
Based on a carbonate hardness of 250 mg/L, the following water quality standards for metals would apply to effluent discharges:				
antimony	190			
arsenic	190			
beryllium	100			
cadmium	2.9			
chromium	440			
copper	27			
lead	22			
mercury	0.012			
nickel	380			
silver	15			
thallium	16			
zinc	510			
free cyanide	12			

**Notes:**

- (1) Substantive permit levels from Ohio EPA to Ruetgers-Nease in a Letter dated July 13, 1993.
- (2) Concentrations in ug/L except as otherwise noted.

**TABLE 6**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**PERFORMANCE EVALUATION PROCEDURES**

<b>START-UP</b>	
prior to pumping	<ul style="list-style-type: none"> <li>- assess conditions at each leachate collection location that might impact metal levels</li> <li>- adjust floats in the pump stations such as to minimize fluctuation in leachate pumping</li> </ul>
2 hrs. into start-up	<ul style="list-style-type: none"> <li>- record all pressure gauge readings (filters, air stripper, and GAC)</li> </ul>
end of start-up	<ul style="list-style-type: none"> <li>- record all pressure gauge readings (filters, air stripper, and GAC)</li> </ul>
<b>PERFORMANCE TEST</b>	
Performance Sampling	<ul style="list-style-type: none"> <li>- collect samples as per Table 8A</li> <li>- take field measurements as per Table 8B</li> </ul>
Operational Parameters	<ul style="list-style-type: none"> <li>- record pressure readings at least three times per day (filters, air stripper, and GAC)</li> <li>- record flow rate from surge tank</li> </ul>
Iron Precipitation	<ul style="list-style-type: none"> <li>- collected sample from SP-3 three times per day</li> <li>- record time of formation and settlement of floc</li> <li>- analyze sample for both total and filtered iron after settlement</li> <li>- measure pH, temperature, and specific conductance</li> </ul>
Vapor Phase Carbon	<ul style="list-style-type: none"> <li>- collect air samples as per Table 8A</li> <li>- measure Total VOCs at least three times per day using an OVA</li> </ul>
<b>SHUTDOWN</b>	
after 5 days operation	<ul style="list-style-type: none"> <li>- Inspect treatment plant components</li> <li>- inspect air stripper for fouling</li> <li>- collect and inspect core samples from the GAC units</li> </ul>

TABLE 7  
NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO

PERFORMANCE EVALUATION SAMPLING AND ANALYSIS PLAN SUMMARY  
TARGET ANALYTES, ANALYTICAL METHODS, AND QUALITY ASSURANCE SAMPLES

Matrix	Parameter	Methodology	Number of Samples	Types of Samples
<u>Aqueous</u> T-1	Volatile Organics	SW846 Method 8240	3 1 1	Primary Field Duplicates Trip Blank (1)
	Semi-Volatile Organics (2)	SW846 Method 8270	3 1	Primary Field Duplicate
	Pesticides	SW846 Method 8080	3 1	Primary Field Duplicate
	MPK	R-N Method (3)	3 1	Primary Field Duplicate
	Filtered Metals	SW846 Methodologies	3 1	Primary Field Duplicate
	Unfiltered Metals	SW846 Methodologies	3 1	Primary Field Duplicate
	Conventional Parameters	(4)	3 1	Primary Field Duplicate
	Volatile Organics	SW846 Method 8240	2	Primary
	Filtered Metals	SW846 Methodologies	3	Primary
SP-1				

TABLE 7  
NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO  
PERFORMANCE EVALUATION SAMPLING AND ANALYSIS PLAN SUMMARY  
TARGET ANALYTES, ANALYTICAL METHODS, AND QUALITY ASSURANCE SAMPLES

Matrix	Parameter	Methodology	Number of Samples	Types of Samples
SP-2	Unfiltered Metals	SW846 Methodologies	3	Primary
	Conventional Parameters (TSS Only)	EPA 160.2	3	Primary
	Volatile Organics	SW846 Method 8240	2	Primary
	Filtered Metals	SW846 Methodologies	3	Primary
	Unfiltered Metals	SW846 Methodologies	3	Primary
SP-3	Filtered Metals	SW846 Methodologies	3	Primary
SP-4	Unfiltered Metals	SW846 Methodologies	3	Primary
	Semi-Volatile Organics	SW846 Method 8270	2	Primary
	Pesticides	SW846 Method 8080	2	Primary
	MPK	R-N Method (3)	2	Primary

**TABLE 7**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**PERFORMANCE EVALUATION SAMPLING AND ANALYSIS PLAN SUMMARY**  
**TARGET ANALYTES, ANALYTICAL METHODS, AND QUALITY ASSURANCE SAMPLES**

Matrix	Parameter	Methodology	Number of Samples	Types of Samples
SP-5	Filtered Metals	SW846 Methodologies	2	Primary
	Unfiltered Metals	SW846 Methodologies	2	Primary
	Volatile Organics	SW846 Method 8240	3	Primary
			1	MS/MSD
			1	Trip Blank (1)
	Semi-Volatile Organics (2)	SW846 Method 8270	3	Primary
			1	MS/MSD
	Pesticides	SW846 Method 8080	3	Primary
			1	MS/MSD
	MPK	R-N Method (3)	3	Primary
			1	MS/MSD
	Filtered Metals	SW846 Methodologies	3	Primary
			1	MS/MSD
	Unfiltered Metals	SW846 Methodologies	3	Primary
			1	MS/MSD
	Conventional Parameters	(4)	3	Primary
			1	MS/MSD
	NPDES Parameters	(5)	1	Primary
			1	MS/MSD

TABLE 7  
NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO

PERFORMANCE EVALUATION SAMPLING AND ANALYSIS PLAN SUMMARY  
TARGET ANALYTES, ANALYTICAL METHODS, AND QUALITY ASSURANCE SAMPLES

Matrix	Parameter	Methodology	Number of Samples	Types of Samples
A-1	Volatile Organics	EPA Method TO14	2	Primary
			1	Field Duplicate
A-2	Volatile Organics	EPA Method TO14	2	Primary

NOTES:

- 1) One trip blank to be analyzed per day of sample shipment (3 Total).
- 2) Semi-volatile organic analysis will include 3,4-dichloronitrobenzene and diphenyl sulfone.
- 3) Mirex, photomirex, and kepone will be analyzed according to the Ruetgers-Nease Method as described in the approved RI Work Plan.
- 4) Conventional parameters include pH, specific conductance, TDS, TSS, TOC, COD, BOD, and ammonia. The respective methodologies are presented in Table 9.
- 5) NPDES parameters include total phenolics, total oil and grease, TUa ceriodaphnia, TUC ceriodaphnia, TUa pimephales promelas, and TUC pimephales promelas. The respective methods are presented in Table 9.

TABLE 8A  
NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO

SAMPLE LOCATIONS AND LABORATORY ANALYSES

SAMPLE LOC.	DESCRIPTION	ESTIMATED COLLECTION TIME (MIN.) (10)	VOCS(1)			SVOCs(2)			PEST.(3)			MPK(4)			METALS(5)			CONV.(6)			NPDES(8)		
			Day			Day			Day			Day			Day			Day			Day		
			1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5	1	3	5
T-1	Surge Tank (Influent)	0	X	X (9)	X	X	X (9)	X	X	X (9)	X	X	X (9)	X	X	X (9)	X	X	X	X			
SP-1	Influent to Air Stripper	2	X		X										X	X	X	X(7)	X(7)	X(7)			
SP-2	Influent to Bag Filter 2	24	X		X										X	X	X						
SP-3	Influent to Liquid GAC 1	26													X	X	X						
SP-4	Influent to Liquid GAC 2	43				X		X	X		X	X		X	X	X	X						
SP-5	Effluent (Liquid)	60	X	X*	X	X	X*	X	X	X*	X	X	X*	X	X	X*	X	X	X	X			X
A-1	Influent to Vapor GAC 1		X		X (9)																		
A-2	Effluent from Vapor GAC 2		X		X																		

Notes:

- (1) Volatile organics will be analyzed by SW846 Method 8240 (liquid-phase) and Method TO14 (gaseous-phase).
- (2) Semi-volatile organics will be analyzed by SW846 Method 8270 and will include 3,4-Dichloronitrobenzene and Diphenyl Sulfone.
- (3) Pesticides will be analyzed by SW846 Method 8080.
- (4) Mirex, photomirex, and kepone will be analyzed by Ruetgers-Nease Method as described in the Approved RI Work Plan.
- (5) TAL Metals (unfiltered and filtered) will be analyzed by appropriate SW846 Methodologies.
- (6) Conventional analytes are pH, specific conductance, TDS, TSS, TOC, COD, BOD, and ammonia.
- (7) This sample will be analyzed for TSS only.
- (8) NPDES parameters include: oil and grease (total); Phenols (total); TUa ceriodaphnia (acute toxicity); TUC ceriodaphnia (chronic toxicity); TUa pimephales promelas (acute toxicity); and TUC pimephales promelas (chronic toxicity).
- (9) A field duplicate will be collected from the Influent on Day 3 for all analyses.
- (10) Samples will be collected following the estimated hydraulic retention times from the Influent (T-1) to the point of sample locations.
- (\*) Sample location where sufficient samples will be collected for MS/MSD analyses.

**TABLE 8B**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**  
**SAMPLE LOCATIONS AND FIELD ANALYSIS (1)**

SAMPLE LOC.	DESCRIPTION	IRON(2)	pH(3)	SPEC. COND.(3)	VOCs(4)
T-1	Surge Tank (Influent)	X	X	X	
SP-1	Influent to Air Stripper	X	X	X	
SP-2	Influent to Bag Filter 2	X	X	X	
SP-3	Influent to Liquid GAC 1	X	X	X	
SP-4	Influent to Liquid GAC 2	X	X	X	
SP-5	Effluent (Liquid)	X	X	X	
A-1	Influent to Vapor GAC 1				X
A-2	Effluent from Vapor GAC 2				X

**NOTES:**

- (1) Samples will be collected from each location at least three times on each of the days during the performance evaluation.
- (2) Iron will be analyzed by a Hach Kit (or equivalent).
- (3) Specific conductance, temperature, and pH will be analyzed by an appropriate field instrument.
- (4) Air-phase VOCs will be monitored by an OVA.



**TABLE 9**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**ANALYTICAL METHODS, SAMPLE CONTAINERS, PRESERVATION AND  
ANALYTICAL HOLD TIMES FOR AQUEOUS AND GASEOUS SAMPLES**

PARAMETER	METHODOLOGY	CONTAINER	MINIMUM SAMPLE	PRESERVATION (a)	HOLD TIME (b)
Volatile Organics (Aqueous)	SW846 Method 8240	(3)-40 ml G	(3) - 40 ml (d)	Cool 4 deg C; HCl, pH<2	14 days (c)
Volatile Organics (Gaseous)	EPA Method TO14	(1) 5 l Summa Can.	5 l	None	14 days (c)
Semi-Volatile Organics	SW846 Method 8270	(2)-1000 ml Amber G	1000 ml (d)	Cool 4 deg C	7 days (e)
Pesticides	SW846 Method 8080	(2)-1000 ml Amber G	1000 ml (d)	Cool 4 deg C	7 days (e)
MPK	R-N Method(g)	(2)-1000 ml Amber G	1000 ml (d)	Cool 4 deg C	7 days (e)
Total Cyanide-TAL	SW846 Methodologies	(2)-1000 ml P or G	1000 ml (d)	Cool 4 deg C; NaOH, pH>12	14 days
Total Metals-TAL	SW846 Methodologies	(1)-1000 ml P or G	1000 ml (d)	Cool 4 deg C; HNO <sub>3</sub> , pH<2	180 days (f)
Ammonia	EPA 350.2	(1)-1000 ml P or G	400 ml	Cool 4 deg C; H <sub>2</sub> SO <sub>4</sub> , pH<2	28 days
Total Organic Carbon	EPA 415.1	(1)-500 ml P or G	250 ml	Cool 4 deg C; HCl, pH<2	28 days
Chemical Oxygen Demand	EPA 410.4	(1)-125 ml P or G	50 ml	Cool 4 deg C; H <sub>2</sub> SO <sub>4</sub> , pH<2	28 days
Total Phenolics	EPA 420.1	(1)-1000 ml G	1000 ml	Cool 4 deg C; H <sub>2</sub> SO <sub>4</sub> , pH<2	28 days
Biochemical Oxygen Demand	EPA 405.1	(2)-1000 ml P or G	1000 ml	Cool 4 deg C	48 hours
Total Dissolved Solids	EPA 160.1	(1)-250 ml P or G	100 ml	Cool 4 deg C	7 days
Total Suspended Solids	EPA 160.2	(1)-250 ml P or G	100 ml	Cool 4 deg C	7 days
Total Oil and Grease	Gravimetric	(1)-1000 ml G	1000 ml	Cool 4 deg C	7 days
TUa ceriodaphnia	Note h	5 gal. P	5 gal.	Cool 4 deg C	7 days
TUc ceriodaphnia	Note i	5 gal. P	5 gal.	Cool 4 deg C	7 days
TUa pimephales promelas	Note h	5 gal. P	5 gal.	Cool 4 deg C	7 days
TUc pimephales promelas	Note j	5 gal. P	5 gal.	Cool 4 deg C	7 days
Specific Conductance	Electrode	P or G	NA	None	Field Measurement
pH	Electrode	P or G	NA	None	Field Measurement
Temperature	Thermometer	G	NA	None	Field Measurement

TABLE 9  
NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO

ANALYTICAL METHODS, SAMPLE CONTAINERS, PRESERVATION AND  
ANALYTICAL HOLD TIMES FOR AQUEOUS AND GASEOUS SAMPLES

**NOTES:**

- (a) Sample Preservation is performed by sampler immediately upon sample collection. Dissolved metals samples will be filtered first and then preserved.  
Separate trial bottles will be used to assess the amount of preservative required to achieve pH<2 or pH>12.
- (b) Hold time based upon day of sample collection not verified time of sample receipt.
- (c) If preservation is not possible due to foaming, an unpreserved sample will be collected. The hold time will be 7 days for unpreserved sample.  
Preservation of VOCs in Water: Adjust the pH of the sample to less than 2 by carefully adding 1:1 hydrochloric acid (HCl) drop by drop to the required (3) 40 ml VOA sample vials. The number of drops of 1:1 HCl required should be determined on a fourth portion of sample of equal volume. Cool to 4°C. If acidification of the sample causes effervescence the samples must be submitted without preservation except for cooling to 4°C. This sample property should be appropriately noted when present, and the reduced holding times of seven days alerted to the laboratory.
- (d) Triple sample volume is required for MS/MSD analysis of organics and metals at a rate of one per twenty field samples (excludes blank samples).
- (e) 7 days for extraction, 40 days for analysis after commencement date of extraction.
- (f) Hold time for Mercury is 28 days.
- (g) Mirex, Photomirex, and Kepone will be analyzed by a Pulsed Positive Negative Chemical Ionization detection system.
- (h) Acute Toxicity Test - 48-hour Static Non-Renewal Definitive Bioassay.
- (i) Chronic Toxicity Test - 7-day Ceriodaphnia dubia survival and reproduction test.
- (j) Chronic Toxicity Test - 7-day fathead minnow, Pimephales promelas, survival and growth test.

1. EPA "Methods for Chemical Analysis of Water and Waste", 1979, revised 3/83.
2. SM "Standard Methods for Water and Wastewater," 16th edition.
3. SW846 "Test Methods for Evaluating Solid Waste", November 1986.

**ABBREVIATIONS**

- P = Polyethylene  
G = Glass

TABLE 10  
NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO

SAMPLE AND DATA QUALITY OBJECTIVE SUMMARY

Media	Sample Point Designation	Number of Samples	Data Quality Level	Parameters of Analysis	Objective
<u>Aqueous</u>	T-1	3	III	VOCs, SVOCs, Pesticides Metals, and Conventional Parameters	Establish influent constituent concentrations
		3	V	MPK	
	SP-1	2	III	VOCs	Assess removal efficiency of metals and solids by Bag Filter 1; also, establish VOC concentration entering the air stripper
		3	III	TSS and Metals	
	SP-2	2	III	VOCs	Assess removal efficiency of VOCs by the air stripper; assess metals precipitation potential
		3	III	Metals	
	SP-3	3	III	Metals	Assess removal efficiency of metals by Bag Filter 2
	SP-4	2	III	SVOCs and Pesticides	Assess the removal efficiency of organics and metals by Aqueous GAC 1
		3	III	Metals	
		2	V	MPK	
<u>Air</u>	SP-5	3	III	VOCs, SVOCs, Pesticides, Metals, and Conventional Parameters	Assess the overall effluent quality in terms of discharge limits
		3	V	MPK	
		1	III	NPDES Parameters	
	A-1	2	III	VOCs	Establish vapor phase VOC concentrations
	A-2	2	III	VOCs	Assess removal efficiency of the vapor phase carbon

**TABLE 11**  
**NEASE CHEMICAL SUPERFUND SITE, SALEM, OHIO**

**LEVELS OF QUALITY ASSURANCE AND ANALYTICAL DATA METHODOLOGIES**

Level	Description (1)	Associated Activity
I	Level I is the lowest quality data but provides the fastest results. Field screening or analysis provides Level I data. It can be used for health and safety monitoring. The generated data can indicate the presence or absence of certain constituents and generally qualitative rather than quantitative. It is the least costly of the analytical options.	<ul style="list-style-type: none"> <li>- Health and safety monitoring</li> <li>- Field analyses</li> <li>- pH, specific conductivity, &amp; temperature</li> <li>- Air screening using organic vapor analyzer</li> </ul>
II	Level II data are generated by field laboratory analysis using more sophisticated portable analytical instruments or a mobile laboratory onsite. This provides fast results and better-quality data than in Level I. The analyses can be used to direct a removal action in an area, re-evaluate sampling locations, or direct installation of a monitoring well network.	<ul style="list-style-type: none"> <li>- Not Applicable</li> </ul>
III	Level III data may be obtained by a commercial laboratory with or without CLP procedures. (The laboratory may or may not participate in the CLP.) The analyses do not usually use the validation or documentation procedures required of CLP Level IV analysis. The analyzed parameters are relevant to the NPDES discharge criteria.	<ul style="list-style-type: none"> <li>- Conventional parameters</li> <li>- NPDES Parameters</li> <li>- VOCs, SVOCs, Pesticides, &amp; Metals</li> <li>- EPA Method TO14</li> </ul>
IV	Level IV data are used for risk assessment, engineering design, and cost-recovery documentation. All analyses are performed in a CLP analytical laboratory and follow CLP procedures. Level IV is characterized by rigorous QC protocols, documentation, and validation.	<ul style="list-style-type: none"> <li>- Not Applicable</li> </ul>
V	Level V data are those obtained by nonstandard analytical procedures.	<ul style="list-style-type: none"> <li>- MPK</li> </ul>
OTHER	Other. This category includes data obtained from visual analyses of the carbon and recording of pressures across the air stripper and GAC beds.	<ul style="list-style-type: none"> <li>- Carbon Core Samples</li> </ul>

(1) EPA DQO Guidance Documents

**APPENDIX B**  
**LANCASTER LABORATORY RESULTS**

**Volatile Organics**

**Semi-Volatile Organics**

**Pesticides**

**Metals**

**Conventionals**

## Jar Test and Backwash Results



**Lancaster Laboratories**  
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15:40:54 402211 REP  
DIS000 D 1 7  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

Backflush - Sludge Grab Water Sample  
R-N Salem

LLI Sample No. WW 2060718  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1100-  
P.O. 933-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/07/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	0.14 mg/l	0.10	104503000P*
The analysis for arsenic was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	0.138 mg/l	0.015	105503000P*
The analysis for lead was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.028 mg/l	0.025	106403000P*
The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7841.			
Aluminum	879. mg/l	0.50	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.480 mg/l	0.025	174601400P*
Beryllium	0.0403 mg/l	0.0025	174701400P*
Cadmium	0.0318 mg/l	0.0025	174901400P*
Calcium	148. mg/l	0.050	175001400P*
Chromium	0.273 mg/l	0.013	175101400P*
Cobalt	0.050 mg/l	0.013	175201400P*
Copper	3.85 mg/l	0.0050	175301400P*
Iron	327. mg/l	0.25	175401400P*
Magnesium	26.1 mg/l	0.025	175701400P*
Manganese	3.41 mg/l	0.0025	175801400P*
Nickel	0.357 mg/l	0.013	176101400P*
Potassium	5.40 mg/l	0.13	176201400P*
Silver	0.0260 mg/l	0.0050	176601400P*
Sodium	34.1 mg/l	0.10	176701400P*
Vanadium	0.364 mg/l	0.0025	177101400P*
Zinc	1.49 mg/l	0.0050	177201400P*

The analyses for barium, beryllium, cadmium, calcium, chromium, cobalt, copper, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846,

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 135



## Lancaster Laboratories

*Where quality is a science.*

15:40:54 402211 REP

DIS000 D 1 7

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060718  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1100-  
P.O. 933-6158  
Rel.

Backflush - Sludge Grab Water Sample  
R-N Salem

### ANALYSIS

Method 6010.

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analyses for aluminum, antimony, iron, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for sodium was performed by DRS on 12/15/93.  
The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
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717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 5





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Where quality is a science.

15:40:48 402211 REP  
DIS000 D 1 7  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

Backflush - Decant Grab Water Sample  
R-N Salem

LLI Sample No. WW 2060719  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1100-  
P.O. 933-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/07/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0078 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/10/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by MST on 12/07/93. The method used was EPA SW-846, Method 7841.			
Aluminum	2.03 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.047 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	133. mg/l	0.050	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	0.0178 mg/l	0.0050	175301400P*
Iron	3.26 mg/l	0.025	175401400P*
Magnesium	24.3 mg/l	0.025	175701400P*
Manganese	1.28 mg/l	0.0025	175801400P*
Nickel	0.033 mg/l	0.013	176101400P*
Potassium	3.67 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	31.8 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.0330 mg/l	0.0050	177201400P*

The analyses for aluminum, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846,

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Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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\* 2216  
9139



15:40:48 402211 REP  
DIS000 D 1 7  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060719  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1100-  
P.O. 933-6158  
Rel.

Backflush - Decant Grab Water Sample  
R-N Salem

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Method 6010.			

The analyses for antimony, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for sodium was performed by DRS on 12/15/93.  
The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060720  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1100-  
P.O. 933-6158  
Rel.

Backflush - Decant Filtered Grab Water Sample  
R-N Salem

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/07/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/10/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.085 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.044 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	132. mg/l	0.050	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	0.0062 mg/l	0.0050	175301400P*
Iron	0.571 mg/l	0.025	175401400P*
Magnesium	24.0 mg/l	0.025	175701400P*
Manganese	1.17 mg/l	0.0025	175801400P*
Nickel	0.030 mg/l	0.013	176101400P*
Potassium	3.62 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	31.5 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.0118 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

The analyses for barium, beryllium, cadmium, calcium, chromium, cobalt,

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2425 New Holland Pike  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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DIS000 D 1 7  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060720  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1100-  
P.O. 933-6158  
Rel.

Backflush - Decant Filtered Grab Water Sample  
R-N Salem

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
copper, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846, Method 6010.			
The analyses for antimony, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.			
The analyses for aluminum and iron were performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.			
The analysis for sodium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			

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332 05667 15.00 041200

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060721  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1045-  
P.O. 933-6158  
Rel.

Pre-Air Stripper  
Pre-aeration Jar Test - Sludge Grab Water Sample  
R-N Salem

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l		0.00020025902500P*
The analysis for mercury was performed by NSM on 12/07/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	0.016 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	0.0154 mg/l	0.0030	105503000P*
The analysis for lead was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0105 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/10/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7841.			
Aluminum	75.3 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.057 mg/l	0.025	174601400P*
Beryllium	0.0047 mg/l	0.0025	174701400P*
Cadmium	0.0091 mg/l	0.0025	174901400P*
Calcium	255. mg/l	0.50	175001400P*
The analysis for calcium was performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.070 mg/l	0.013	175201400P*
Copper	0.0317 mg/l	0.0050	175301400P*
Iron	54.6 mg/l	0.025	175401400P*
Magnesium	50.7 mg/l	0.025	175701400P*
Manganese	6.33 mg/l	0.0025	175801400P*
Nickel	0.145 mg/l	0.013	176101400P*
Potassium	5.98 mg/l	0.13	176201400P*
Silver	0.0083 mg/l	0.0050	176601400P*
Sodium	238. mg/l	1.0	176701400P*
Vanadium	0.0456 mg/l	0.0025	177101400P*
Zinc	0.664 mg/l	0.0050	177201400P*

The analyses for aluminum, barium, beryllium, cadmium, chromium, cobalt,

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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DIS000 D 1 7  
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060721  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1045-  
P.O. 933-6158  
Rel.

Pre-aeration Jar Test - Sludge Grab Water Sample  
R-N Salem

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
copper, iron, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846, Method 6010.			

The analyses for antimony, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for sodium was performed by DRS on 12/15/93.  
The method used was EPA SW-846, Method 6010.

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
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DIS000 D 1 7  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060722  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1045-  
P.O. 933-6158  
Rel.

Pre-Air Stripper  
Pre-aeration Jar Test - Decant Filtered Grab Water  
Sample  
R-N Salem

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/07/93.			
The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010 104503000P*	
The analysis for arsenic was performed by BLB on 12/07/93.			
The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030 105503000P*	
The analysis for lead was performed by BLB on 12/07/93.			
The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0050 mg/l	0.0050 106403000P*	
The analysis for selenium was performed by EAT on 12/10/93.			
The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010 107303000P*	
The analysis for thallium was performed by JAS on 12/08/93.			
The method used was EPA SW-846, Method 7841.			
Aluminum	0.104 mg/l	0.050 174301400P*	
Antimony	< 0.050 mg/l	0.050 174401400P*	
Barium	0.037 mg/l	0.025 174601400P*	
Beryllium	< 0.0025 mg/l	0.0025 174701400P*	
Cadmium	< 0.0025 mg/l	0.0025 174901400P*	
Calcium	232. mg/l	0.50 175001400P*	
The analysis for calcium was performed by RSJ on 12/17/93. The method used			
was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013 175101400P*	
Cobalt	0.022 mg/l	0.013 175201400P*	
Copper	0.0113 mg/l	0.0050 175301400P*	
Iron	< 0.025 mg/l	0.025 175401400P*	
Magnesium	47.7 mg/l	0.025 175701400P*	
Manganese	4.69 mg/l	0.0025 175801400P*	
Nickel	0.054 mg/l	0.013 176101400P*	
Potassium	5.81 mg/l	0.13 176201400P*	
Silver	< 0.0050 mg/l	0.0050 176601400P*	
Sodium	224. mg/l	1.0 176701400P*	
Vanadium	< 0.0025 mg/l	0.0025 177101400P*	
Zinc	0.0131 mg/l	0.0050 177201400P*	

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060722  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1045-  
P.O. 933-6158  
Rel.

Pre-aeration Jar Test - Decant Filtered Grab Water  
Sample  
R-N Salem

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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The analyses for barium, beryllium, cadmium, chromium, cobalt, copper, iron, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846, Method 6010.

The analyses for antimony, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for aluminum was performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

The analysis for sodium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060723  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1415-  
P.O. 933-6158  
Rel.

*800*  
*1. 9/94*  
~~Pre-aeration~~ Jar Test - Sludge Grab Water Sample  
R-N Salem

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l The analysis for mercury was performed by NSM on 12/07/93. The method used was EPA SW-846, Method 7470.	0.00020025902500P*	
Arsenic (furnace method)	0.015 mg/l The analysis for arsenic was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7060.	0.010 104503000P*	
Lead (furnace method)	0.0072 mg/l The analysis for lead was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7421.	0.0030 105503000P*	
Selenium (furnace method)	0.0081 mg/l The analysis for selenium was performed by EAT on 12/10/93. The method used was EPA SW-846, Method 7740.	0.0050 106403000P*	
Thallium (furnace method)	< 0.010 mg/l The analysis for thallium was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7841.	0.010 107303000P*	
Aluminum	73.8 mg/l	0.050 174301400P*	
Antimony	< 0.050 mg/l	0.050 174401400P*	
Barium	0.051 mg/l	0.025 174601400P*	
Beryllium	0.0044 mg/l	0.0025 174701400P*	
Cadmium	0.0079 mg/l	0.0025 174901400P*	
Calcium	240. mg/l The analysis for calcium was performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.	0.50 175001400P*	
Chromium	< 0.013 mg/l	0.013 175101400P*	
Cobalt	0.065 mg/l	0.013 175201400P*	
Copper	0.0294 mg/l	0.0050 175301400P*	
Iron	50.6 mg/l	0.025 175401400P*	
Magnesium	49.6 mg/l	0.025 175701400P*	
Manganese	6.28 mg/l	0.0025 175801400P*	
Nickel	0.139 mg/l	0.013 176101400P*	
Potassium	5.83 mg/l	0.13 176201400P*	
Silver	0.0075 mg/l	0.0050 176601400P*	
Sodium	156. mg/l	0.10 176701400P*	
Vanadium	0.0455 mg/l	0.0025 177101400P*	
Zinc	0.606 mg/l	0.0050 177201400P*	

The analyses for aluminum, barium, beryllium, cadmium, chromium, cobalt,

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:40:14 402211 REP  
DIS000 D 1 7  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060723  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1415-  
P.O. 933-6158  
Rel.

Pre-aeration Jar Test - Sludge Grab Water Sample  
R-N Salem

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
copper, iron, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846, Method 6010.			

The analyses for antimony, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for sodium was performed by DRS on 12/15/93.  
The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
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15:40:03 402211 REP  
DIS000 D 1 7  
05667 0

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060724  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1415-  
P.O. 933-6158  
Rel.

*JEC*  
*3/94*  
Post Air-Stripper  
~~Pre-aeration~~ Jar Test - Decant Filtered Grab Water  
Sample  
R-N Salem

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/07/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/10/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by JAS on 12/08/93. The method used was EPA SW-846, Method 7841.			
Aluminum	< 0.050 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.042 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	235. mg/l	0.50	175001400P*
The analysis for calcium was performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.024 mg/l	0.013	175201400P*
Copper	0.0088 mg/l	0.0050	175301400P*
Iron	5.14 mg/l	0.025	175401400P*
Magnesium	47.1 mg/l	0.025	175701400P*
Manganese	4.65 mg/l	0.0025	175801400P*
Nickel	0.060 mg/l	0.013	176101400P*
Potassium	5.69 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	151. mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.0908 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 221f  
9 13f



15:40:03 402211 REP  
DIS000 D 1 7  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2060724  
Date Reported 1/25/94  
Date Submitted 12/ 4/93  
Discard Date 12/ 4/93  
Collected 12/ 3/93 by JC  
Time Collected 1415-  
P.O. 933-6158  
Rel.

Pre-aeration Jar Test - Decant Filtered Grab Water  
Sample  
R-N Salem

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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The analyses for barium, beryllium, cadmium, chromium, cobalt, copper, iron, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/08/93. The method used was EPA SW-846, Method 6010.

The analyses for antimony, magnesium, and silver were performed by DRS on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for aluminum was performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analysis for sodium was performed by DRS on 12/15/93.  
The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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**Day One (12/1/93) Results**



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15:45:17 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. VW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG# ANALYSIS	RESULT AS RECEIVED	UNIT	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	85.	mg/l	7.	020601400P*
The analysis for total suspended solids was performed by DSS on 12/3/93. The method used was EPA 160.2.				
Total Dissolved Solids	1,800.	mg/l	50.	021201500P*
The analysis for total dissolved solids was performed by CLM on 12/03/93. The method used was EPA 160.1.				
Ammonia Nitrogen	9.	mg/l	1.	022102800P*
The analysis for ammonia nitrogen was performed by EJJ on 12/15/93. The method used was EPA 350.2.				
Biochemical Oxygen Demand	120.	mg/l	2.	023503300P*
The analysis for biochemical oxygen demand was initially performed by JS on 12/02/93. The result was < 1200 mg/l. Because the chosen aliquots did not yield acceptable final dissolved oxygen readings, the analysis was repeated by JS on 12/07/93. The method used was EPA 405.1.				
Mercury	< 0.00020	mg/l	0.00020	025902500P*
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.				
Total Organic Carbon	250.	mg/l	5.	027302500P*
The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC". The analysis for TOC was performed by DE on 12/07/93. The method used was EPA 600, Method 415.1.				
Arsenic (furnace method)	< 0.010	mg/l	0.010	104503000P*
The analysis for arsenic was performed by BLB on 12/07/93. The method used was EPA SW-846, Method 7060.				
Lead (furnace method)	0.0036	mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.				
Selenium (furnace method)	< 0.0050	mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7740.				
Thallium (furnace method)	< 0.010	mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.				
Acid Extractables SW846/8270A	attached			142414000P*

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\*22\*  
913



**Lancaster Laboratories**  
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# Analysis Report

15:45:17 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

STT-1 SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
Purgeables (SW846/8240A)	attached		150827000P*
P.P. Pesticides (SW846/8080)	attached		159924000P*
Aluminum	38.7 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.046 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	252. mg/l	0.50	175001400P*

The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.

Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.043 mg/l	0.013	175201400P*
Copper	0.0177 mg/l	0.0050	175301400P*
Iron	28.2 mg/l	0.025	175401400P*
Magnesium	48.4 mg/l	0.025	175701400P*
Manganese	5.17 mg/l	0.0025	175801400P*
Nickel	0.095 mg/l	0.013	176101400P*
Potassium	5.83 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	71.9 mg/l	0.10	176701400P*
Vanadium	0.0265 mg/l	0.0025	177101400P*
Zinc	0.338 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.

The method used was USEPA CLP Statement, March 1990.

Chemical Oxygen Demand	790. mg/l	50.	400102900P*
------------------------	-----------	-----	-------------

The analysis for chemical oxygen demand was performed by AMP on 12/07/93.

The method used was EPA 410.4.

Benzoic Acid	29,000. ug/l	13,000.	900100000P
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900202000P
Diphenyl Sulfone	2,900. ug/l	2,500.	900302000P

The analyses for antimony, potassium, and sodium were performed by DRS on 12/05/93. The method used was EPA SW-846, Method 6010.

The analyses for beryllium, chromium, and magnesium were performed by RSJ

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



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15:45:17 401894 REP

DIS000 D 1 13

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

on 12/06/93. The method used was EPA SW-846, method 6010.

The analyses for barium, cadmium, cobalt, copper, iron, manganese,  
nickel, silver, and zinc were performed by DRS on 12/08/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum and vanadium were performed by NCH on 12/13/93.

The method used was EPA SW-846, Method 6010.

The GC/MS semivolatile surrogate recovery of nitrobenzene-d5 was  
outside of QC limits. The recovery was, however, greater than 10%.

The analysis for GC/MS semivolatiles was performed by RAS on 12/10/93. The  
method used was SW-846, Method 8270A.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 170100

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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\*221-  
9 13




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15:45:36 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	18. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	120. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	13. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

See reverse side for explanation of symbols and abbreviations




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15:45:43 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	84. ug/l	10.	393800000P
1,2-dichlorobenzene	13,000. ug/l	2,500.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	29. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

See reverse side for explanation of symbols and abbreviations.





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15:45:53 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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15:45:59 401894 REP

DIS000 D 1 13

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059387

Date Reported 1/25/94

Date Submitted 12/ 2/93

Discard Date 12/ 2/93

Collected 12/ 1/93 by JC

Time Collected 1215-

P.O. 933-6158

Rel.

STT-1 SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 500. ug/l	500.	125800000P
Bromomethane	< 500. ug/l	500.	125700000P
Vinyl Chloride	< 500. ug/l	500.	349200000P
Chloroethane	< 500. ug/l	500.	349400000P
Acrolein	< 5,000. ug/l	5,000.	349500000P
Acrylonitrile	< 5,000. ug/l	5,000.	349600000P
Methylene Chloride	< 250. ug/l	250.	349700000P
Trichlorofluoromethane	< 250. ug/l	250.	126400000P
1,1-Dichloroethene	< 250. ug/l	250.	350000000P
1,1-Dichloroethane	< 250. ug/l	250.	350100000P
1,2-Dichloroethene (total)	3,800. ug/l	250.	350200000P
Chloroform	< 250. ug/l	250.	350300000P
1,2-Dichloroethane	3,600. ug/l	250.	350400000P
1,1,1-Trichloroethane	< 250. ug/l	250.	350500000P
Carbon Tetrachloride	< 250. ug/l	250.	350600000P
Bromodichloromethane	< 250. ug/l	250.	350800000P
1,1,2,2-Tetrachloroethane	8,300. ug/l	250.	352300000P
1,2-Dichloropropane	< 250. ug/l	250.	350900000P
trans-1,3-Dichloropropene	< 250. ug/l	250.	351000000P
Trichloroethene	3,500. ug/l	250.	351100000P
Dibromochloromethane	< 250. ug/l	250.	351200000P
1,1,2-Trichloroethane	< 250. ug/l	250.	351300000P
Benzene	11,000. ug/l	250.	351500000P
cis-1,3-Dichloropropene	< 250. ug/l	250.	351600000P
2-Chloroethyl Vinyl Ether	< 500. ug/l	500.	364500000P
Bromoform	< 250. ug/l	250.	351800000P
Tetrachloroethene	7,200. ug/l	250.	352200000P
Toluene	1,400. ug/l	250.	352400000P
Chlorobenzene	610. ug/l	250.	352500000P
Ethylbenzene	< 250. ug/l	250.	352600000P
Xylene (total)	< 250. ug/l	250.	352900000P

The analysis for GC/MS volatiles was performed by TSS on 12/08/93.  
The method used was EPA SW846 Method 8240A.

The quantitation limits for the GC/MS volatile compounds were raised  
because sample dilution was necessary to bring target compounds into the

Questions? Contact Environmental  
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Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





15:45:59 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#  
Purgeables (SW846/8240A)  
calibration range of the system.

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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15:46:09 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059387  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 0.5 ug/l	0.5	160000000P
Beta BHC	< 0.1 ug/l	0.1	160100000P
Gamma BHC - Lindane	< 0.1 ug/l	0.1	160200000P
Delta BHC	< 0.5 ug/l	0.5	160300000P
Heptachlor	< 0.1 ug/l	0.1	160400000P
Aldrin	< 0.1 ug/l	0.1	160500000P
Heptachlor Epoxide	< 0.2 ug/l	0.2	160600000P
DDE	< 0.1 ug/l	0.1	160700000P
DDD	< 0.1 ug/l	0.1	160800000P
DDT	< 0.1 ug/l	0.1	160900000P
Dieldrin	< 0.2 ug/l	0.2	161000000P
Endrin	< 0.3 ug/l	0.3	161100000P
Methoxychlor	< 0.5 ug/l	0.5	186000000P
Chlordane	< 3. ug/l	3.	161200000P
Toxaphene	< 40. ug/l	40.	161300000P
Endosulfan I	< 0.1 ug/l	0.1	161600000P
Endosulfan II	< 0.1 ug/l	0.1	161500000P
Endosulfan Sulfate	< 0.3 ug/l	0.3	161700000P
Endrin Aldehyde	< 1. ug/l	1.	161800000P

The analysis for Pesticides was performed by NES on 12/30/93.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September 1986.

Due to interfering peaks on the chromatogram, the values reported represent  
the lowest quantitation limits obtainable. Despite numerous clean-up  
methods, we were unable to reach our usual quantitation limits.

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations





15:45:05 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059388  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1215-  
P.O. 933-6158  
Rel.

T-1 Surge Tank (Influent) Filtered Grab Water

K-N Salem/933-6158 Nease Chemical Superfund Site  
STT-1 SDG#

# ANALYSIS

## RESULT AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE  
0.00020025902500P\*

Mercury

< 0.00020 mg/l

0.00020025902500P\*

The analysis for mercury was performed by JMH on 12/04/93.

The method used was EPA SW-846, Method 7470.

Arsenic (furnace method)

< 0.010 mg/l

0.010 104503000P\*

The analysis for arsenic was performed by RDG on 12/04/93.

The method used was EPA SW-846, Method 7060.

Lead (furnace method)

0.0061 mg/l

0.0030 105503000P\*

The analysis for lead was performed by MST on 12/06/93.

The method used was EPA SW-846, Method 7421.

Selenium (furnace method)

0.0067 mg/l

0.0050 106403000P\*

The analysis for selenium was performed by BLB on 12/06/93.

The method used was EPA SW-846, Method 7740.

Thallium (furnace method)

< 0.010 mg/l

0.010 107303000P\*

The analysis for thallium was performed by RDG on 12/05/93.

The method used was EPA SW-846, Method 7841.

Aluminum

27.3 mg/l

0.050 174301400P\*

Antimony

< 0.050 mg/l

0.050 174401400P\*

Barium

0.043 mg/l

0.025 174601400P\*

Beryllium

< 0.013 mg/l

0.013 174701400P\*

Cadmium

< 0.0025 mg/l

0.0025 174901400P\*

Calcium

237. mg/l

1.0 175001400P\*

The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.

Chromium

< 0.013 mg/l

0.013 175101400P\*

Cobalt

0.043 mg/l

0.013 175201400P\*

Copper

0.0229 mg/l

0.0050 175301400P\*

Iron

26.5 mg/l

0.025 175401400P\*

Magnesium

46.9 mg/l

0.025 175701400P\*

Manganese

5.05 mg/l

0.0025 175801400P\*

Nickel

0.096 mg/l

0.013 176101400P\*

Potassium

5.71 mg/l

0.13 176201400P\*

Silver

< 0.0050 mg/l

0.0050 176601400P\*

Sodium

75.8 mg/l

0.10 176701400P\*

Vanadium

0.0124 mg/l

0.0025 177101400P\*

Zinc

0.321 mg/l

0.0050 177201400P\*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059388  
Date Reported 1/25/94  
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Rel.

T-1 Surge Tank (Influent) Filtered Grab Water

R-N Salem/933-6158 Nease Chemical Superfund Site

STT-1 SDG#

ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, vanadium, and zinc were performed by DRS on 12/06/93. The method used was EPA SW-846, Method 6010.

The analyses for chromium, potassium, and sodium were performed by DRS on 12/07/93. The method used was EPA SW-846, method 6010.

The analysis for beryllium was performed by RSJ on 12/09/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum and magnesium were performed by DRS on 12/14/93.

The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:44:37 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059389  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1217-  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IASPI SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	80. mg/l	9.	020601400P*
The analysis for total suspended solids was performed by DSS on 12/3/93. The method used was EPA 160.2.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	0.0063 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.			
Purgeables (SW846/8240A)	attached		150827000P*
Aluminum	35.3 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.047 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	245. mg/l	0.50	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.044 mg/l	0.013	175201400P*
Copper	0.0926 mg/l	0.0050	175301400P*
Iron	28.5 mg/l	0.025	175401400P*
Magnesium	47.5 mg/l	0.025	175701400P*
Manganese	5.23 mg/l	0.0025	175801400P*
Nickel	0.096 mg/l	0.013	176101400P*
Potassium	5.73 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	71.4 mg/l	0.10	176701400P*

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Lancaster Laboratories, Inc.  
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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations




15:44:37 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059389  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1217-  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IASPI SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Vanadium	0.0247 mg/l	0.0025	177101400P*
Zinc	0.377 mg/l	0.0050	177201400P*
Total Cyanide	6.2 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for antimony, potassium, and sodium were performed by DRS on 12/05/93. The method used was EPA SW-846, Method 6010.

The analyses for beryllium, chromium, and magnesium were performed by RSJ on 12/06/93. The method used was EPA SW-846, Method 6010.

The analyses for barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, and zinc were performed by DRS on 12/08/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum and vanadium were performed by NCH on 12/13/93.

The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
332 05667 30.00 075100

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
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LLI Sample No. WW 2059389  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1217-  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IASP1 SDG#	RESULT		LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED		QUANTITATION	
Chloromethane	< 1,000.	ug/l	1,000.	125800000P
Bromomethane	< 1,000.	ug/l	1,000.	125700000P
Vinyl Chloride	< 1,000.	ug/l	1,000.	349200000P
Chloroethane	< 1,000.	ug/l	1,000.	349400000P
Acrolein	< 10,000.	ug/l	10,000.	349500000P
Acrylonitrile	< 10,000.	ug/l	10,000.	349600000P
Methylene Chloride	< 500.	ug/l	500.	349700000P
Trichlorofluoromethane	< 500.	ug/l	500.	126400000P
1,1-Dichloroethene	< 500.	ug/l	500.	350000000P
1,1-Dichloroethane	< 500.	ug/l	500.	350100000P
1,2-Dichloroethene (total)	3,800.	ug/l	500.	350200000P
Chloroform	< 500.	ug/l	500.	350300000P
1,2-Dichloroethane	3,600.	ug/l	500.	350400000P
1,1,1-Trichloroethane	< 500.	ug/l	500.	350500000P
Carbon Tetrachloride	< 500.	ug/l	500.	350600000P
Bromodichloromethane	< 500.	ug/l	500.	350800000P
1,1,1,2,2-Tetrachloroethane	8,500.	ug/l	500.	352300000P
1,2-Dichloropropane	< 500.	ug/l	500.	350900000P
trans-1,3-Dichloropropene	< 500.	ug/l	500.	351000000P
Trichloroethene	3,800.	ug/l	500.	351100000P
Dibromochloromethane	< 500.	ug/l	500.	351200000P
1,1,2-Trichloroethane	< 500.	ug/l	500.	351300000P
Benzene	11,000.	ug/l	500.	351500000P
cis-1,3-Dichloropropene	< 500.	ug/l	500.	351600000P
2-Chloroethyl Vinyl Ether	< 1,000.	ug/l	1,000.	364500000P
Bromoform	< 500.	ug/l	500.	351800000P
Tetrachloroethene	8,000.	ug/l	500.	352200000P
Toluene	1,400.	ug/l	500.	352400000P
Chlorobenzene	670.	ug/l	500.	352500000P
Ethylbenzene	< 500.	ug/l	500.	352600000P
Xylene (total)	< 500.	ug/l	500.	352900000P

The analysis for GC/MS volatiles was performed by MGB on 12/08/93.  
The method used was EPA SW846 Method 8240A.

The quantitation limits for the GC/MS volatile compounds were raised  
because sample dilution was necessary to bring target compounds into the

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





## Lancaster Laboratories

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WV 2059389  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1217-  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IASPl SDG#  
Purgeables (SW846/8240A)  
calibration range of the system.

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 9



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15:44:22 401894 REP  
DIS000 D 1 13  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-1 Influent to Air Stripper Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059390  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1217-  
P.O. 933-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.			
Sodium	74.7 mg/l	0.40	026701400P*
The analysis for sodium was performed by NLW on 12/17/93. The method used was EPA Sw-846, Method 7770.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/04/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0075 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BLB on 12/06/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.			
Aluminum	23.9 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.042 mg/l	0.025	174601400P*
Beryllium	< 0.013 mg/l	0.013	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	234. mg/l	1.3	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.042 mg/l	0.013	175201400P*
Copper	0.0147 mg/l	0.0050	175301400P*
Iron	25.7 mg/l	0.025	175401400P*
Magnesium	45.9 mg/l	0.025	175701400P*
Manganese	4.87 mg/l	0.0025	175801400P*
Nickel	0.091 mg/l	0.013	176101400P*
Potassium	5.93 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Vanadium	0.0104 mg/l	0.0025	177101400P*
Zinc	0.287 mg/l	0.0050	177201400P*

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Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
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717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





15:44:22 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059390  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1217-  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
----------	-----------------------	--------------------------	----------

This sample was field filtered for dissolved metals.

The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, vanadium, and zinc were performed by DRS on 12/06/93. The method used was EPA SW-846, Method 6010.

The analysis for chromium was performed by DRS on 12/07/93.

The method used was EPA SW-846, Method 6010.

The analysis for beryllium was performed by RSJ on 12/09/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum, magnesium, and potassium were performed by DRS on 12/14/93. The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:43:58 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059391  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1239-  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IBF-2 SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by JMH on 12/04/93.			
The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	0.011 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/04/93.			
The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	0.0058 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93.			
The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0063 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/10/93.			
The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93.			
The method used was EPA SW-846, Method 7841.			
Purgeables (SW846/8240A)	attached		150827000P*
Aluminum	39.3 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.044 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	254. mg/l	0.50	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.050 mg/l	0.013	175201400P*
Copper	0.0233 mg/l	0.0050	175301400P*
Iron	30.1 mg/l	0.025	175401400P*
Magnesium	50.1 mg/l	0.025	175701400P*
Manganese	5.71 mg/l	0.0025	175801400P*
Nickel	0.108 mg/l	0.013	176101400P*
Potassium	5.34 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	75.2 mg/l	0.10	176701400P*
Vanadium	0.0234 mg/l	0.0025	177101400P*
Zinc	0.371 mg/l	0.0050	177201400P*
Total Cyanide	6.4 ug/l	5.0	334304000P*

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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Instrumental Water Chemistry

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15:43:58 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059391  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1239-  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IBF-2 SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analysis for total cyanide was performed by SAH on 12/10/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for antimony, potassium, and sodium were performed by DRS on 12/05/93. The method used was EPA SW-846, Method 6010.  
The analyses for beryllium, chromium, and magnesium were performed by RSJ on 12/06/93. The method used was EPA SW-846, Method 6010.  
The analyses for barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, and zinc were performed by DRS on 12/08/93. The method used was EPA SW-846, Method 6010.  
The analyses for aluminum and vanadium were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 073700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 5





15:44:08 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-2 Influent to Bag Filter 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059391  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1239-  
P.O. 933-6158  
Rel.

IBF-2 SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 200. ug/l	200.	125800000P
Bromomethane	< 200. ug/l	200.	125700000P
Vinyl Chloride	< 200. ug/l	200.	349200000P
Chloroethane	< 200. ug/l	200.	349400000P
Acrolein	< 2,000. ug/l	2,000.	349500000P
Acrylonitrile	< 2,000. ug/l	2,000.	349600000P
Methylene Chloride	< 100. ug/l	100.	349700000P
Trichlorofluoromethane	< 100. ug/l	100.	126400000P
1,1-Dichloroethene	< 100. ug/l	100.	350000000P
1,1-Dichloroethane	< 100. ug/l	100.	350100000P
1,2-Dichloroethene (total)	870. ug/l	100.	350200000P
Chloroform	< 100. ug/l	100.	350300000P
1,2-Dichloroethane	2,300. ug/l	100.	350400000P
1,1,1-Trichloroethane	< 100. ug/l	100.	350500000P
Carbon Tetrachloride	< 100. ug/l	100.	350600000P
Bromodichloromethane	< 100. ug/l	100.	350800000P
1,1,2,2-Tetrachloroethane	7,800. ug/l	100.	352300000P
1,2-Dichloropropane	< 100. ug/l	100.	350900000P
trans-1,3-Dichloropropene	< 100. ug/l	100.	351000000P
Trichloroethene	540. ug/l	100.	351100000P
Dibromochloromethane	< 100. ug/l	100.	351200000P
1,1,2-Trichloroethane	< 100. ug/l	100.	351300000P
Benzene	2,000. ug/l	100.	351500000P
cis-1,3-Dichloropropene	< 100. ug/l	100.	351600000P
2-Chloroethyl Vinyl Ether	< 200. ug/l	200.	364500000P
Bromoform	140. ug/l	100.	351800000P
Tetrachloroethene	< 100. ug/l	100.	352200000P
Toluene	280. ug/l	100.	352400000P
Chlorobenzene	200. ug/l	100.	352500000P
Ethylbenzene	< 100. ug/l	100.	352600000P
Xylene (total)	< 100. ug/l	100.	352900000N

The analysis for GC/MS volatiles was performed by TSS on 12/08/93.  
The method used was EPA SW846 Method 8240A.

The quantitation limits for the GC/MS volatile compounds were raised  
because sample dilution was necessary to bring target compounds into the

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717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





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SP-2 Influent to Bag Filter 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

IBF-2 SDG#  
Purgeables (SW846/8240A)  
calibration range of the system.

**RESULT**  
**AS RECEIVED**

LLI Sample No. WW 2059391  
Date Reported 1/25/94  
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Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1239-  
P.O. 933-6158  
Rel.

**LIMIT OF**  
**QUANTITATION LAB CODE**

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Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





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Golder Associates Incorporated  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059392  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1239-  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020	20025902500P*
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.			
Sodium	84.4 mg/l	0.40	026701400P*
The analysis for sodium was performed by NLW on 12/17/93. The method used was EPA SW-846, Method 7770.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/04/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0111 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BLB on 12/06/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.			
Aluminum	24.0 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.042 mg/l	0.025	174601400P*
Beryllium	< 0.013 mg/l	0.013	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	243. mg/l	1.3	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.046 mg/l	0.013	175201400P*
Copper	0.0196 mg/l	0.0050	175301400P*
Iron	27.7 mg/l	0.025	175401400P*
Magnesium	49.8 mg/l	0.025	175701400P*
Manganese	5.35 mg/l	0.0025	175801400P*
Nickel	0.103 mg/l	0.013	176101400P*
Potassium	5.90 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Vanadium	0.0088 mg/l	0.0025	177101400P*
Zinc	0.319 mg/l	0.0050	177201400P*

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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059392  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
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Time Collected 1239-  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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This sample was field filtered for dissolved metals.

The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, vanadium, and zinc were performed by DRS on 12/06/93. The method used was EPA SW-846, Method 6010.

The analysis for chromium was performed by DRS on 12/07/93.  
The method used was EPA SW-846, Method 6010.

The analyses for aluminum, magnesium, and potassium were performed by DRS on 12/14/93. The method used was EPA SW-846, Method 6010.

The analysis for beryllium was performed by RSJ on 12/09/93.  
The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
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Instrumental Water Chemistry

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9 13



15:43:38 401894 REP  
DIS000 D 1 13  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-3 Influent to Liquid GAC 1 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059393  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1241-  
P.O. 933-6158  
Rel.

ILGIS SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.	0.00020025902500P*	
Arsenic (furnace method)	0.010 mg/l The analysis for arsenic was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7060.	0.010 104503000P*	
Lead (furnace method)	0.0042 mg/l The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.	0.0030 105503000P*	
Selenium (furnace method)	< 0.0050 mg/l The analysis for selenium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7740.	0.0050 106403000P*	
Thallium (furnace method)	< 0.010 mg/l The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.	0.010 107303000P*	
Aluminum	38.5 mg/l	0.050 174301400P*	
Antimony	< 0.050 mg/l	0.050 174401400P*	
Barium	0.046 mg/l	0.025 174601400P*	
Beryllium	< 0.0025 mg/l	0.0025 174701400P*	
Cadmium	< 0.0025 mg/l	0.0025 174901400P*	
Calcium	256. mg/l The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.	0.50 175001400P*	
Chromium	< 0.013 mg/l	0.013 175101400P*	
Cobalt	0.051 mg/l	0.013 175201400P*	
Copper	0.0526 mg/l	0.0050 175301400P*	
Iron	31.1 mg/l	0.025 175401400P*	
Magnesium	50.2 mg/l	0.025 175701400P*	
Manganese	5.92 mg/l	0.0025 175801400P*	
Nickel	0.117 mg/l	0.013 176101400P*	
Potassium	5.48 mg/l	0.13 176201400P*	
Silver	< 0.0050 mg/l	0.0050 176601400P*	
Sodium	76.0 mg/l	0.10 176701400P*	
Vanadium	0.0229 mg/l	0.0025 177101400P*	
Zinc	0.420 mg/l	0.0050 177201400P*	
Total Cyanide	7.6 ug/l The analysis for total cyanide was performed by SAH on 12/10/93.	5.0 334304000P*	

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059393  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1241-  
P.O. 933-6158  
Rel.

SP-3 Influent to Liquid GAC 1 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ILG1S SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The method used was USEPA CLP Statement, March 1990.

The analyses for antimony, potassium, and sodium were performed by DRS on 12/05/93. The method used was EPA SW-846, Method 6010.

The analyses for beryllium, chromium, and magnesium were performed by RSJ on 12/06/93. The method used was EPA SW-846, Method 6010.

The analyses for barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, and zinc were performed by DRS on 12/08/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum and vanadium were performed by NCH on 12/13/93.

The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 046700

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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15:43:31 401894 REP

DIS000 D 1 13

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059394

Date Reported 1/25/94

Date Submitted 12/ 2/93

Discard Date 12/ 2/93

Collected 12/ 1/93 by JC

Time Collected 1241-

P.O. 933-6158

Rel.

SP-3 Influent to Liquid GAC 1 Filtered Grab

Water Sample

R-N Salem/933-6158 Nease Chemical Superfund Site

## ANALYSIS

## RESULT

## AS RECEIVED

## LIMIT OF QUANTITATION

## LAB CODE

Mercury	< 0.00020 mg/l	0.00020025902500P*
The analysis for mercury was performed by JMH on 12/04/93.		
The method used was EPA SW-846, Method 7470.		
Sodium	87.1 mg/l	0.40 026701400P*
The analysis for sodium was performed by NLW on 12/17/93.		
The method used was EPA SW-846, Method 7770.		
Arsenic (furnace method)	< 0.010 mg/l	0.010 104503000P*
The analysis for arsenic was performed by RDG on 12/04/93.		
The method used was EPA SW-846, Method 7060.		
Lead (furnace method)	< 0.0030 mg/l	0.0030 105503000P*
The analysis for lead was performed by MST on 12/06/93.		
The method used was EPA SW-846, Method 7421.		
Selenium (furnace method)	0.0105 mg/l	0.0050 106403000P*
The analysis for selenium was performed by BLB on 12/06/93.		
The method used was EPA Sw-846, Method 7740.		
Thallium (furnace method)	< 0.010 mg/l	0.010 107303000P*
The analysis for thallium was performed by RDG on 12/05/93.		
The method used was EPA SW-846, Method 7841.		
Aluminum	25.4 mg/l	0.050 174301400P*
Antimony	< 0.050 mg/l	0.050 174401400P*
Barium	0.041 mg/l	0.025 174601400P*
Beryllium	< 0.013 mg/l	0.013 174701400P*
Cadmium	< 0.0025 mg/l	0.0025 174901400P*
Calcium	245. mg/l	1.3 175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.		
Chromium	< 0.013 mg/l	0.013 175101400P*
Cobalt	0.046 mg/l	0.013 175201400P*
Copper	0.0174 mg/l	0.0050 175301400P*
Iron	27.9 mg/l	0.025 175401400P*
Magnesium	52.2 mg/l	0.025 175701400P*
Manganese	5.42 mg/l	0.0025 175801400P*
Nickel	0.105 mg/l	0.013 176101400P*
Potassium	6.09 mg/l	0.13 176201400P*
Silver	< 0.0050 mg/l	0.0050 176601400P*
Vanadium	0.0080 mg/l	0.0025 177101400P*
Zinc	0.336 mg/l	0.0050 177201400P*

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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



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Golder Associates Incorporated  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059394  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1241-  
P.O. 933-6158  
Rel.

SP-3 Influent to Liquid GAC 1 Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

## ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

This sample was field filtered for dissolved metals.

The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, vanadium, and zinc were performed by DRS on 12/06/93. The method used was EPA SW-846, Method 6010.

The analysis for chromium was performed by DRS on 12/07/93.

The method used was EPA SW-846, Method 6010.

The analysis for beryllium was performed by RSJ on 12/09/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum, magnesium, and potassium were performed by DRS on 12/14/93. The method used was EPA SW-846, Method 6010.

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Instrumental Water Chemistry

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15:42:42 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059395  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

GAC2I SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by JMH on 12/04/93.			
The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/05/93.			
The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93.			
The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/05/93.			
The method used was EPA Sw-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93.			
The method used was EPA SW-846, Method 7841.			
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
P.P. Pesticides (SW846/8080)	attached		159924000P*
Aluminum	0.636 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.104 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	255. mg/l	0.50	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used			
was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.055 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	13.7 mg/l	0.025	175401400P*
Magnesium	52.0 mg/l	0.025	175701400P*
Manganese	6.16 mg/l	0.0025	175801400P*
Nickel	0.144 mg/l	0.013	176101400P*
Potassium	5.92 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	86.2 mg/l	0.10	176701400P*

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9-13



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05667 0

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LLI Sample No. WW 2059395  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

GAC2I SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.410 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*
The analysis for total cyanide was performed by SAH on 12/10/93. The method used was USEPA CLP Statement, March 1990.			
Benzoic Acid	< 50. ug/l	50.	900100000P
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900202000P
Diphenyl Sulfone	< 10. ug/l	10.	900302000P

The analyses for beryllium, chromium, magnesium, and potassium were performed by RSJ on 12/06/93. The method used was EPA SW-846, Method 6010. The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, and zinc were performed by DRS on 12/08/93. The method used was EPA SW-846, Method 6010. The analyses for aluminum, vanadium, and sodium were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/10/93. The method used was SW-846, Method 8270A.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 128700

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





15:42:55 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059395  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

GAC2I SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	< 10. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	< 10. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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\* 221F  
9 13 C


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15:43:03 401894 REP

DIS000 D 1 13

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059395

Date Reported 1/25/94

Date Submitted 12/ 2/93

Discard Date 12/ 2/93

Collected 12/ 1/93 by JC

Time Collected 1258-

P.O. 933-6158

Rel.

GAC2I SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	< 10. ug/l	10.	393800000P
1,2-dichlorobenzene	< 10. ug/l	10.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	< 10. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

See reverse side for explanation of symbols and abbreviations.



\* 221-  
9 13



15:43:13 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WV 2059395  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

GAC2I SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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DIS000 D 1 13  
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Golder Associates Incorporated  
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Mount Laurel, NJ 08054-1232

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2059395  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

GAC2I SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 0.1 ug/l	0.1	16000000P
Beta BHC	< 0.1 ug/l	0.1	16010000P
Gamma BHC - Lindane	< 0.1 ug/l	0.1	16020000P
Delta BHC	< 0.1 ug/l	0.1	16030000P
Heptachlor	< 0.1 ug/l	0.1	16040000P
Aldrin	< 0.1 ug/l	0.1	16050000P
Heptachlor Epoxide	< 0.1 ug/l	0.1	16060000P
DDE	< 0.1 ug/l	0.1	16070000P
DDD	< 0.1 ug/l	0.1	16080000P
DDT	< 0.1 ug/l	0.1	16090000P
Dieldrin	< 0.1 ug/l	0.1	16100000P
Endrin	< 0.1 ug/l	0.1	16110000P
Methoxychlor	< 0.5 ug/l	0.5	18600000P
Chlordane	< 3. ug/l	3.	16120000P
Toxaphene	< 40. ug/l	40.	16130000P
Endosulfan I	< 0.1 ug/l	0.1	16160000P
Endosulfan II	< 0.1 ug/l	0.1	16150000P
Endosulfan Sulfate	< 0.3 ug/l	0.3	16170000P
Endrin Aldehyde	< 1. ug/l	1.	16180000P

The analysis for Pesticides was performed by NES on 12/28/93.  
The method used was Test Methods for Evaluating Solid Wastes, SW-846,  
Method 8080, September 1986.

Due to interfering peaks on the chromatogram, the values reported represent  
the lowest quantitation limits obtainable. Despite numerous clean-up  
methods, we were unable to reach our usual quantitation limits.

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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15:42:30 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059396  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.			
Sodium	89.3 mg/l	0.40	026701400P*
The analysis for sodium was performed by NLW on 12/17/93. The method used was EPA SW-846, Method 7770.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/04/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BLB on 12/06/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.493 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.091 mg/l	0.025	174601400P*
Beryllium	< 0.013 mg/l	0.013	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	226. mg/l	1.3	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.050 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	12.1 mg/l	0.025	175401400P*
Magnesium	48.7 mg/l	0.025	175701400P*
Manganese	5.45 mg/l	0.0025	175801400P*
Nickel	0.131 mg/l	0.013	176101400P*
Potassium	5.88 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.379 mg/l	0.0050	177201400P*

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 5



15:42:30 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059396  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1258-  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Filtered Grab  
Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site  
ANALYSIS RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

This sample was field filtered for dissolved metals.

The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, vanadium, and zinc were performed by DRS on 12/06/93. The method used was EPA SW-846, Method 6010.

The analysis for chromium was performed by DRS on 12/07/93.

The method used was EPA SW-846, Method 6010.

The analysis for beryllium was performed by RSJ on 12/09/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum, magnesium, and potassium were performed by DRS on 12/14/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:41:42 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	< 7. mg/l	7.	020601400P*
The analysis for total suspended solids was performed by DSS on 12/3/93. The method used was EPA 160.2.			
Total Dissolved Solids	1,500. mg/l	30.	021201500P*
The analysis for total dissolved solids was performed by CLM on 12/03/93. The method used was EPA 160.1.			
Ammonia Nitrogen	8. mg/l	1.	022102800P*
The analysis for ammonia nitrogen was performed by EJF on 12/15/93. The method used was EPA 350.2.			
Biochemical Oxygen Demand	15. mg/l	2.	023503300P*
The analysis for biochemical oxygen demand was performed by JS on 12/02/93. The method used was EPA 405.1.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.			
Total Organic Carbon	6. mg/l	1.	027302500P*
The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC". The analysis for TOC was performed by DE on 12/07/93. The method used was EPA 600, Method 415.1.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.			
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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## Analysis Report

15:41:42 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG# ANALYSIS	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Purgeables (SW846/8240A)		attached		150827000P*
P.P. Pesticides (SW846/8080)		attached		159924000P*
Aluminum	0.051	mg/l	0.050	174301400P*
Antimony	< 0.050	mg/l	0.050	174401400P*
Barium	0.145	mg/l	0.025	174601400P*
Beryllium	< 0.0025	mg/l	0.0025	174701400P*
Cadmium	< 0.0025	mg/l	0.0025	174901400P*
Calcium	264.	mg/l	0.50	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.				
Chromium	< 0.013	mg/l	0.013	175101400P*
Cobalt	0.059	mg/l	0.013	175201400P*
Copper	< 0.0050	mg/l	0.0050	175301400P*
Iron	0.577	mg/l	0.025	175401400P*
Magnesium	51.1	mg/l	0.025	175701400P*
Manganese	6.57	mg/l	0.0025	175801400P*
Nickel	0.177	mg/l	0.013	176101400P*
Potassium	5.85	mg/l	0.13	176201400P*
Silver	< 0.0050	mg/l	0.0050	176601400P*
Sodium	87.8	mg/l	0.10	176701400P*
Vanadium	< 0.0025	mg/l	0.0025	177101400P*
Zinc	0.188	mg/l	0.0050	177201400P*
Total Cyanide	< 5.0	ug/l	5.0	334304000P*
The analysis for total cyanide was performed by SAH on 12/10/93. The method used was USEPA CLP Statement, March 1990.				
Chemical Oxygen Demand	< 50.	mg/l	50.	400102900P*
The analysis for chemical oxygen demand was performed by AMP on 12/08/93. The method used was EPA 410.4.				
Benzoic Acid	< 50.	ug/l	50.	900100000P
3,4-Dichloronitrobenzene	< 50.	ug/l	50.	900202000P
Diphenyl Sulfone	< 10.	ug/l	10.	900302000P

The analyses for beryllium, chromium, magnesium, and potassium were performed by RSJ on 12/06/93. The method used was EPA SW-846, Method 6010. The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, and zinc were performed by DRS on 12/08/93. The method used was EPA SW-846, Method 6010.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:41:42 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

**SPEFF SDG#  
ANALYSIS**

**RESULT  
AS RECEIVED**

**LIMIT OF  
QUANTITATION LAB CODE**

The analyses for aluminum, sodium, and vanadium were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/10/93. The method used was SW-846, Method 8270A.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 170100

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:41:58 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	< 10. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	< 10. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

See reverse side for explanation of symbols and abbreviations



\* 221-  
913



15:42:03 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	< 10. ug/l	10.	393800000P
1,2-dichlorobenzene	< 10. ug/l	10.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	< 10. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Lancaster Laboratories, Inc.



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717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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15:42:08 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Lancaster Laboratories, Inc.



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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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15:42:12 401894 REP

DIS000 D 1 13

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397

Date Reported 1/25/94

Date Submitted 12/ 2/93

Discard Date 12/ 2/93

Collected 12/ 1/93 by JC

Time Collected 1315-

P.O. 933-6158

Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000P
Vinyl Chloride	< 10. ug/l	10.	349200000P
Chloroethane	< 10. ug/l	10.	349400000P
Acrolein	< 100. ug/l	100.	349500000P
Acrylonitrile	< 100. ug/l	100.	349600000P
Methylene Chloride	< 5. ug/l	5.	349700000P
Trichlorofluoromethane	< 5. ug/l	5.	126400000P
1,1-Dichloroethene	< 5. ug/l	5.	350000000P
1,1-Dichloroethane	< 5. ug/l	5.	350100000P
1,2-Dichloroethene (total)	< 5. ug/l	5.	350200000P
Chloroform	< 5. ug/l	5.	350300000P
1,2-Dichloroethane	< 5. ug/l	5.	350400000P
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000P
Carbon Tetrachloride	< 5. ug/l	5.	350600000P
Bromodichloromethane	< 5. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	< 5. ug/l	5.	352300000P
1,2-Dichloropropane	< 5. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	< 5. ug/l	5.	351100000P
Dibromochloromethane	< 5. ug/l	5.	351200000P
1,1,2-Trichloroethane	< 5. ug/l	5.	351300000P
Benzene	< 5. ug/l	5.	351500000P
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000P
Bromoform	< 5. ug/l	5.	351800000P
Tetrachloroethene	< 5. ug/l	5.	352200000P
Toluene	< 5. ug/l	5.	352400000P
Chlorobenzene	< 5. ug/l	5.	352500000P
Ethylbenzene	< 5. ug/l	5.	352600000P
Xylene (total)	< 5. ug/l	5.	352900000P

The analysis for GC/MS volatile was performed by TSS on 12/08/93.  
The method used was EPA SW846 Method 8240A.

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Lancaster Laboratories, Inc.  
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717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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15:42:19 401894 REP  
DIS000 D 1 13  
05667 0

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059397  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SPEFF SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 0.01 ug/l	0.01	16000000P
Beta BHC	< 0.01 ug/l	0.01	16010000P
Gamma BHC - Lindane	< 0.01 ug/l	0.01	16020000P
Delta BHC	< 0.01 ug/l	0.01	16030000P
Heptachlor	< 0.01 ug/l	0.01	16040000P
Aldrin	< 0.01 ug/l	0.01	16050000P
Heptachlor Epoxide	< 0.01 ug/l	0.01	16060000P
DDE	< 0.01 ug/l	0.01	16070000P
DDD	< 0.01 ug/l	0.01	16080000P
DDT	< 0.01 ug/l	0.01	16090000P
Dieldrin	< 0.01 ug/l	0.01	16100000P
Endrin	< 0.01 ug/l	0.01	16110000P
Methoxychlor	< 0.05 ug/l	0.05	18600000P
Chlordane	< 0.3 ug/l	0.3	16120000P
Toxaphene	< 4. ug/l	4.	16130000P
Endosulfan I	< 0.01 ug/l	0.01	16160000P
Endosulfan II	< 0.01 ug/l	0.01	16150000P
Endosulfan Sulfate	< 0.03 ug/l	0.03	16170000P
Endrin Aldehyde	< 0.1 ug/l	0.1	16180000P

The analysis for Pesticides was performed by JEH on 12/28/93.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September 1986.

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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15:41:20 401894 REP

DIS000 D 1 13

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059398  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by JMH on 12/04/93. The method used was EPA SW-846, Method 7470.			
Sodium	90.9 mg/l	0.40	026701400P*
The analysis for sodium was performed by NLW on 12/17/93. The method used was EPA SW-846, Method 7770.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by RDG on 12/04/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/06/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0071 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BLB on 12/06/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/05/93. The method used was EPA SW-846, Method 7841.			
Aluminum	< 0.050 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.138 mg/l	0.025	174601400P*
Beryllium	< 0.013 mg/l	0.013	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	258. mg/l	1.3	175001400P*
The analysis for calcium was performed by DRS on 12/15/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.057 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	0.359 mg/l	0.025	175401400P*
Magnesium	52.7 mg/l	0.025	175701400P*
Manganese	6.40 mg/l	0.0025	175801400P*
Nickel	0.168 mg/l	0.013	176101400P*
Potassium	6.29 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.132 mg/l	0.0050	177201400P*

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Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 221  
9 13



15:41:20 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059398  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1315-  
P.O. 933-6158  
Rel.

SP-5 Effluent (Liquid) Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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This sample was field filtered for dissolved metals.

The analyses for antimony, barium, cadmium, cobalt, copper, iron, manganese, nickel, silver, vanadium, and zinc were performed by DRS on 12/06/93. The method used was EPA SW-846, Method 6010.

The analysis for chromium was performed by DRS on 12/07/93.

The method used was EPA SW-846, Method 6010.

The analysis for beryllium was performed by RSJ on 12/09/93.

The method used was EPA SW-846, Method 6010.

The analyses for aluminum, magnesium, and potassium were performed by DRS on 12/14/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
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Instrumental Water Chemistry

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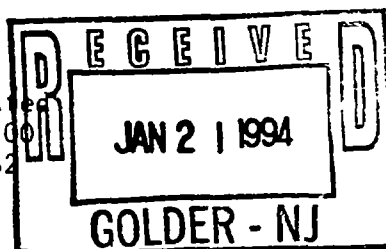
\* 221/  
9'13

Day Six (12/6/93) Results



14:42:16 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

TIME SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids The analysis for total suspended solids was performed by DSS on 12/08/93. The method used was EPA 160.2.	80. mg/l	10.	020601400P*
Total Dissolved Solids The analysis for total dissolved solids was performed by CLM on 12/09/93. The method used was EPA 160.1.	1,570. mg/l	50.	021201500P*
Ammonia Nitrogen The analysis for ammonia nitrogen was performed by TMG on 12/16/93. The method used was EPA 350.2.	7. mg/l	1.	022102800P*
Biochemical Oxygen Demand The analysis for biochemical oxygen demand was performed by JS on 12/07/93. The method used was EPA 405.1.	171. mg/l	2.	023503300P*
Cadmium The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.	< 0.0025 mg/l	0.0025	024901400P*
Mercury The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.	< 0.00020 mg/l	0.00020	025902500P*
Total Organic Carbon The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC". The analysis for TOC was performed by DE on 12/09/93. The method used was EPA 600, Method 415.1.	160. mg/l	5.	027302500P*
Arsenic (furnace method) The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.	< 0.010 mg/l	0.010	104503000P*
Lead (furnace method) The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.	< 0.0030 mg/l	0.0030	105503000P*
Selenium (furnace method) The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.	0.0096 mg/l	0.0050	106403000P*
Thallium (furnace method) The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.	< 0.010 mg/l	0.010	107303000P*

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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\* 2216  
9 139



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14:42:16 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent Grab Water Sample  
K-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

TIINF SDG# ANALYSIS	RESULT AS RECEIVED		LIMIT OF QUANTITATION	LAB CODE
Acid Extractables SW846/8270A		attached		142414000P*
Base Neutrals (SW846/8270A)		attached		142540000P*
Base Neut., cont (SW846/8270A)		attached		142600000P*
Purgeables (SW846/8240A)		attached		150827000P*
P.P. Pesticides (SW846/8080)		attached		159924000P
Aluminum	29.8	mg/l	0.050	174301400P*
Antimony	< 0.050	mg/l	0.050	174401400P*
Barium	0.035	mg/l	0.025	174601400P*
Beryllium	< 0.0025	mg/l	0.0025	174701400P*
Calcium	232.	mg/l	0.50	175001400P*
Chromium	< 0.013	mg/l	0.013	175101400P*
Cobalt	0.040	mg/l	0.013	175201400P*
Copper	0.0176	mg/l	0.0050	175301400P*
Iron	23.0	mg/l	0.025	175401400P*
Magnesium	48.4	mg/l	0.025	175701400P*
Manganese	4.80	mg/l	0.0025	175801400P*
Nickel	0.086	mg/l	0.013	176101400P*
Potassium	5.89	mg/l	0.13	176201400P*
Silver	< 0.0050	mg/l	0.0050	176601400P*

The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.

Sodium	73.1	mg/l	1.0	176701400P*
Vanadium	0.0150	mg/l	0.0025	177101400P*
Zinc	0.260	mg/l	0.0050	177201400P*
Total Cyanide	< 5.0	ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.

The method used was USEPA CLP Statement, March 1990.

Chemical Oxygen Demand	690.	mg/l	50.	400102900P*
------------------------	------	------	-----	-------------

The analysis for chemical oxygen demand was performed by AMP on 12/09/93.

The method used was EPA 410.4.

Benzoic Acid	19,000.	ug/l	10,000.	900100000P
3,4-Dichloronitrobenzene	< 50.	ug/l	50.	900202000P
Diphenyl Sulfone	< 2,000.	ug/l	2,000.	900302000P

The concentration of diphenyl sulfone is tentative since it was above the calibration range in the initial analysis of the sample and was below detection limits in the diluted analysis of the sample.

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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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14:42:16 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent Grab Water Sample  
K-N Salem/933-6158 Nease Chemical Superfund Site

TIINF SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/23/93. The method used was SW-846, Method 8270A.

The GC/MS semivolatile surrogate recovery of nitrobenzene-d5 was outside of QC limits. The recovery was, however, greater than 10%.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 170100

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

TIINF SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	12. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	79. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

TIINF SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	70. ug/l	10.	393800000P
1,2-dichlorobenzene	10,000. ug/l	2,000.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	24. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
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T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

TLINF SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

TLINF SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 500. ug/l	500.	125800000P
Bromomethane	< 500. ug/l	500.	125700000P
Vinyl Chloride	< 500. ug/l	500.	349200000P
Chloroethane	< 500. ug/l	500.	349400000P
Acrolein	< 5,000. ug/l	5,000.	349500000P
Acrylonitrile	< 5,000. ug/l	5,000.	349600000P
Methylene Chloride	< 250. ug/l	250.	349700000P
Trichlorofluoromethane	< 250. ug/l	250.	126400000P
1,1-Dichloroethene	< 250. ug/l	250.	350000000P
1,1-Dichloroethane	< 250. ug/l	250.	350100000P
1,2-Dichloroethene (total)	2,900. ug/l	250.	350200000P
Chloroform	< 250. ug/l	250.	350300000P
1,2-Dichloroethane	3,000. ug/l	250.	350400000P
1,1,1-Trichloroethane	< 250. ug/l	250.	350500000P
Carbon Tetrachloride	< 250. ug/l	250.	350600000P
Bromodichloromethane	< 250. ug/l	250.	350800000P
1,1,2,2-Tetrachloroethane	6,700. ug/l	250.	352300000P
1,2-Dichloropropane	< 250. ug/l	250.	350900000P
trans-1,3-Dichloropropene	< 250. ug/l	250.	351000000P
Trichloroethene	3,400. ug/l	250.	351100000P
Dibromochloromethane	< 250. ug/l	250.	351200000P
1,1,2-Trichloroethane	< 250. ug/l	250.	351300000P
Benzene	9,600. ug/l	250.	351500000P
cis-1,3-Dichloropropene	< 250. ug/l	250.	351600000P
2-Chloroethyl Vinyl Ether	< 500. ug/l	500.	364500000P
Bromoform	< 250. ug/l	250.	351800000P
Tetrachloroethene	7,400. ug/l	250.	352200000P
Toluene	1,300. ug/l	250.	352400000P
Chlorobenzene	510. ug/l	250.	352500000P
Ethylbenzene	< 250. ug/l	250.	352600000P
Xylene (total)	< 250. ug/l	250.	352900000P

The quantitation limits for the GC/MS volatile compounds were raised because sample dilution was necessary to bring target compounds into the calibration range of the system.

The analysis for GC/MS volatiles was performed by TSS on 12/09/93.

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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Mount Laurel, NJ 08054-1232

T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

TLINF SDG#

Purgeables (SW846/8240A)

The method used was EPA SW846 Method 8240A.

RESULT

AS RECEIVED

LLI Sample No. WW 2061628

Date Reported 1/20/94

Date Submitted 12/ 7/93

Discard Date 1/28/94

Collected 12/ 6/93 by JC

Time Collected 1110

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LIMIT OF

QUANTITATION LAB CODE

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Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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LLI Sample No. WW 2061628  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

TLINF SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 1. ug/l	1.	160000000P
Beta BHC	< 0.1 ug/l	0.1	160100000P
Gamma BHC - Lindane	< 0.1 ug/l	0.1	160200000P
Delta BHC	< 0.1 ug/l	0.1	160300000P
Heptachlor	< 0.1 ug/l	0.1	160400000P
Aldrin	< 0.1 ug/l	0.1	160500000P
Heptachlor Epoxide	< 0.1 ug/l	0.1	160600000P
DDE	< 0.1 ug/l	0.1	160700000P
DDD	< 0.1 ug/l	0.1	160800000P
DDT	< 0.1 ug/l	0.1	160900000P
Dieldrin	< 0.1 ug/l	0.1	161000000P
Endrin	< 0.1 ug/l	0.1	161100000P
Methoxychlor	< 0.5 ug/l	0.5	186000000P
Chlordane	< 3. ug/l	3.	161200000P
Toxaphene	< 40. ug/l	40.	161300000P
Endosulfan I	< 0.1 ug/l	0.1	161600000P
Endosulfan II	< 0.1 ug/l	0.1	161500000P
Endosulfan Sulfate	< 0.3 ug/l	0.3	161700000P
Endrin Aldehyde	< 1. ug/l	1.	161800000P
PCB-1016	< 10. ug/l	10.	161900000P
PCB-1221	< 10. ug/l	10.	162000000P
PCB-1232	< 10. ug/l	10.	162100000P
PCB-1242	< 10. ug/l	10.	162200000P
PCB-1248	< 10. ug/l	10.	162300000P
PCB-1254	< 10. ug/l	10.	162400000P
PCB-1260	< 10. ug/l	10.	162600000P

The analysis for Pesticides was performed by NES on 12/30/93.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September 1986.

Due to interfering peaks on the chromatogram, the values reported represent  
the lowest quantitation limits obtainable. Despite numerous clean-up  
methods, we were unable to reach our usual quantitation limits.

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations



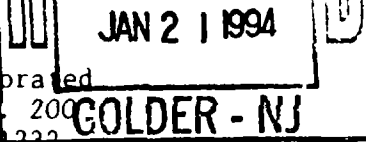
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LLI Sample No. WW 2061629  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
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T-1 Influent Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

#### ANALYSIS

#### RESULT AS RECEIVED

#### LIMIT OF QUANTITATION LAB CODE

The method used was EPA SW-846, Method 6010.  
The analyses for antimony, aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/15/93.  
The method used was EPA SW-846, Method 6010.  
The analyses for calcium and chromium were performed by RSJ on 12/17/93.  
The method used was EPA SW-846, Method 6010.

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Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	16.9 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.033 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	232. mg/l	1.0	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.039 mg/l	0.013	175201400P*
Copper	0.0165 mg/l	0.0050	175301400P*
Iron	21.7 mg/l	0.025	175401400P*
Magnesium	45.7 mg/l	0.025	175701400P*
Manganese	4.66 mg/l	0.0025	175801400P*
Nickel	0.087 mg/l	0.013	176101400P*
Potassium	5.8 mg/l	1.3	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	75.2 mg/l	1.0	176701400P*
Vanadium	0.0058 mg/l	0.0025	177101400P*
Zinc	0.287 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

The analyses for potassium and sodium were performed by NCH on 12/13/93.

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Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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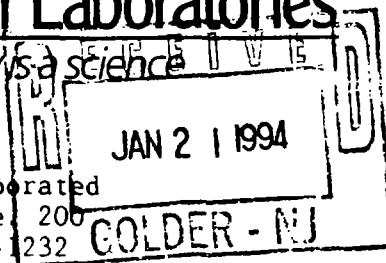


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LLI Sample No. WW 2061630  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1112  
P.O. 923-6158  
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SP-1 Influent to Air Stripper Grab Water Sample  
K-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	80. mg/l	10.	020601400P*
The analysis for total suspended solids was performed by DSS on 12/08/93. The method used was EPA 160.2.			
Cadmium	< 0.0025 mg/l	0.0025	024901400P*
The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.			
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	0.0104 mg/l	0.0030	105503000P*
The analysis for lead was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0090 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	29.0 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.035 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	234. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.040 mg/l	0.013	175201400P*
Copper	0.0205 mg/l	0.0050	175301400P*
Iron	22.5 mg/l	0.025	175401400P*
Magnesium	47.9 mg/l	0.025	175701400P*
Manganese	4.71 mg/l	0.0025	175801400P*
Nickel	0.083 mg/l	0.013	176101400P*
Potassium	5.84 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.			

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Respectfully Submitted  
Lancaster Laboratories, Inc.



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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061630  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1112  
P.O. 923-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Sodium	72.7 mg/l	1.0	176701400P*
Vanadium	0.0152 mg/l	0.0025	177101400P*
Zinc	0.256 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93.  
The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 048100

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 135

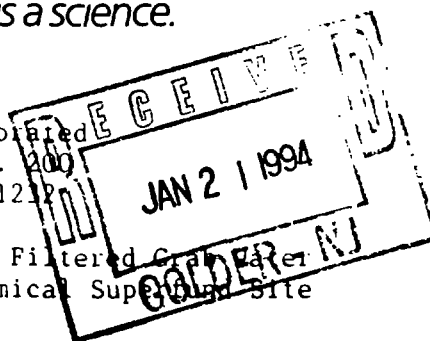




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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1212



SP-1 Influent to Air Stripper Filtered Golder Associates  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061631  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1112  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT	LIMIT OF QUANTITATION	LAB CODE
Mercury	AS RECEIVED < 0.00020 mg/l The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.	0.00020025902500P*	
Arsenic (furnace method)	< 0.010 mg/l The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.	0.010 104503000P*	
Lead (furnace method)	0.0132 mg/l The analysis for lead was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7421.	0.0030 105503000P*	
Selenium (furnace method)	0.0055 mg/l The analysis for selenium was performed by BLB on 12/10/93. The method used was EPA SW-846, Method 7740.	0.0050 106403000P*	
Thallium (furnace method)	< 0.010 mg/l The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.	0.010 107303000P*	
Aluminum	16.1 mg/l	0.050 174301400P*	
Antimony	< 0.050 mg/l	0.050 174401400P*	
Barium	0.033 mg/l	0.025 174601400P*	
Beryllium	< 0.0025 mg/l	0.0025 174701400P*	
Cadmium	< 0.0025 mg/l	0.0025 174901400P*	
Calcium	236. mg/l	1.0 175001400P*	
Chromium	< 0.013 mg/l	0.013 175101400P*	
Cobalt	0.037 mg/l	0.013 175201400P*	
Copper	0.0292 mg/l	0.0050 175301400P*	
Iron	21.2 mg/l	0.025 175401400P*	
Magnesium	45.3 mg/l	0.025 175701400P*	
Manganese	4.58 mg/l	0.0025 175801400P*	
Nickel	0.081 mg/l	0.013 176101400P*	
Potassium	5.9 mg/l	1.3 176201400P*	
Silver	< 0.0050 mg/l	0.0050 176601400P*	
Sodium	75.1 mg/l	1.0 176701400P*	
Vanadium	0.0060 mg/l	0.0025 177101400P*	
Zinc	0.293 mg/l	0.0050 177201400P*	

This sample was field filtered for dissolved metals.

The analyses for potassium and sodium were performed by NCH on 12/13/93.

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 221E  
9 13 9



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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-1 Influent to Air Stripper Filtered Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061631  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1112  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
The method used was EPA SW-846, Method 6010.			
The analyses for antimony, aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/15/93.			
The method used was EPA SW-846, Method 6010.			
The analyses for calcium and chromium were performed by RSJ on 12/20/93.			
The method used was EPA -846, Method 6010.			

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332 05667 15.00 041200



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717-656-2301

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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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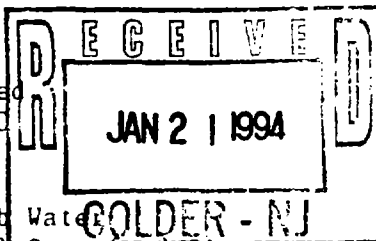
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



SP-2 Influent to Bag Filter 2 Grab Water  
K N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061632  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1134  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Cadmium	< 0.0025 mg/l	0.0025	024901400P*
The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.			
Mercury	< 0.000201 mg/l	0.000200	25902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846 Method 7841.			
Aluminum	16.3 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.036 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	190. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.024 mg/l	0.013	175201400P*
Copper	0.0072 mg/l	0.0050	175301400P*
Iron	14.8 mg/l	0.025	175401400P*
Magnesium	37.6 mg/l	0.025	175701400P*
Manganese	3.21 mg/l	0.0025	175801400P*
Nickel	0.053 mg/l	0.013	176101400P*
Potassium	4.91 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.			
Sodium	53.6 mg/l	1.0	176701400P*
Vanadium	0.0089 mg/l	0.0025	177101400P*
Zinc	0.163 mg/l	0.0050	177201400P*

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Golder Associates Incorporated  
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SP-2 Influent to Bag Filter 2 Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061632  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1134  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93.  
The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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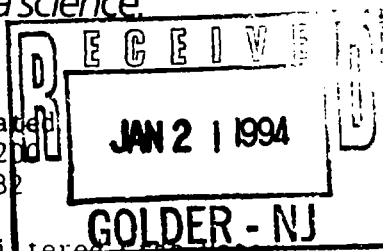


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LLI Sample No. WW 2061633  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1134  
P.O. 923-6158  
Rel.

SP-2 Influent to Bag Filter 2 Filtered Water  
E-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	0.0055 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BLB on 12/10/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.347 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.034 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	197. mg/l	1.0	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.024 mg/l	0.013	175201400P*
Copper	0.0095 mg/l	0.0050	175301400P*
Iron	14.0 mg/l	0.025	175401400P*
Magnesium	35.9 mg/l	0.025	175701400P*
Manganese	3.17 mg/l	0.0025	175801400P*
Nickel	0.076 mg/l	0.013	176101400P*
Potassium	5.0 mg/l	1.3	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	56.9 mg/l	1.0	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.217 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

The analyses for potassium and sodium were performed by NCH on 12/13/93.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-2 Influent to Bag Filter 2 Filtered Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061633  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1134  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
The method used was EPA SW-846, Method 6010.			
The analyses for antimony, aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/15/93.			
The method used was EPA SW-846, Method 6010.			
The analyses for calcium and chromium were performed by RSJ on 12/17/93.			
The method used was EPA SW-846, Method 6010.			

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Client Services at (717) 656-2301  
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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations

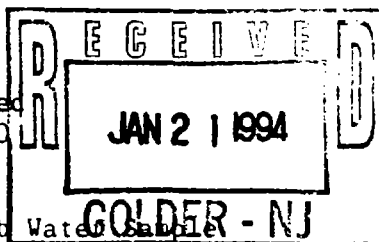




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14:41:20 402466 REP  
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



SP-3 Influent to Liquid GAC 1 Grab Water Sample  
K-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061634  
Date Reported 1/20/94  
Date Submitted 12/7/93  
Discard Date 1/28/94  
Collected 12/6/93 by JC  
Time Collected 1136  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Cadmium	< 0.0025 mg/l	0.0025	024901400P*
The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.			
Mercury	< 0.00020 mg/l	0.00020	0025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	13.9 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.036 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	187. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.022 mg/l	0.013	175201400P*
Copper	0.0087 mg/l	0.0050	175301400P*
Iron	13.7 mg/l	0.025	175401400P*
Magnesium	35.8 mg/l	0.025	175701400P*
Manganese	3.00 mg/l	0.0025	175801400P*
Nickel	0.049 mg/l	0.013	176101400P*
Potassium	4.71 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.			
Sodium	51.7 mg/l	1.0	176701400P*
Vanadium	0.0069 mg/l	0.0025	177101400P*
Zinc	0.144 mg/l	0.0050	177201400P*

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-3 Influent to Liquid GAC 1 Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061634  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1136  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Cyanide	< 5.0 ug/l	5.0	334304000P*
The analysis for total cyanide was performed by SAH on 12/10/93. The method used was USEPA CLP Statement, March 1990.			

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93.  
The method used was EPA SW-846, Method 6010.

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332 05667 30.00 046700

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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14:41:15 402466 REP  
ASR000 D 1 19  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061635  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1136  
P.O. 923-6158  
Rel.

SP-3 Influent to Liquid GAC 1 Filtered Grab Water  
R N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.201 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.034 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	190. mg/l	1.0	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.022 mg/l	0.013	175201400P*
Copper	0.0086 mg/l	0.0050	175301400P*
Iron	12.8 mg/l	0.025	175401400P*
Magnesium	34.2 mg/l	0.025	175701400P*
Manganese	2.94 mg/l	0.0025	175801400P*
Nickel	0.091 mg/l	0.013	176101400P*
Potassium	4.43 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	50.9 mg/l	2.0	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.227 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.  
The analyses for antimony, aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, vanadium,

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717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





Lancaster Laboratories

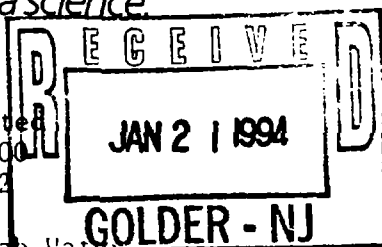
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14:41:08 402466 REP

ASR000 D 1 19

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



SP-4 Influent to Liquid GAC 2 Grab Water  
K-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. VW 2061636  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1153  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Cadmium	< 0.0025 mg/l The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.	0.0025	024901400P*
Mercury	< 0.00020 mg/l The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.	0.0002	0025902500P*
Arsenic (furnace method)	< 0.010 mg/l The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.	0.010	104503000P*
Lead (furnace method)	< 0.0030 mg/l The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.	0.0030	105503000P*
Selenium (furnace method)	< 0.0050 mg/l The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.	0.0050	106403000P*
Thallium (furnace method)	< 0.010 mg/l The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.	0.010	107303000P*
Aluminum	0.779 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.035 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	152. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.013 mg/l	0.013	175201400P*
Copper	0.0606 mg/l	0.0050	175301400P*
Iron	2.17 mg/l	0.025	175401400P*
Magnesium	27.5 mg/l	0.025	175701400P*
Manganese	1.99 mg/l	0.0025	175801400P*
Nickel	0.044 mg/l	0.013	176101400P*
Potassium	3.88 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.	0.0050	176601400P*
Sodium	38.6 mg/l	1.0	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.0931 mg/l	0.0050	177201400P*

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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Instrumental Water Chemistry

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-4 Influent to Liquid GAC 2 Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061636  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1153  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93.  
The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 046700

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-4 Influent to Liquid GAC 2 Filtered Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061637  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1153  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Mercury	< 0.00020 mg/l		0.00020025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BLB on 12/10/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.480 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.036 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	159. mg/l	1.0	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.014 mg/l	0.013	175201400P*
Copper	0.0628 mg/l	0.0050	175301400P*
Iron	2.13 mg/l	0.025	175401400P*
Magnesium	27.5 mg/l	0.025	175701400P*
Manganese	2.08 mg/l	0.0025	175801400P*
Nickel	0.044 mg/l	0.013	176101400P*
Potassium	3.83 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	39.1 mg/l	2.0	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.0991 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

The analyses for antimony, aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, vanadium,

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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14:41:00 402466 REP  
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-4 Influent to Liquid GAC 2 Filtered Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061637  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1153  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
and zinc were performed by NCH on 12/15/93.			
The method used was EPA SW-846, Method 6010.			
The analyses for calcium, chromium, and sodium were performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.			

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Client Services at (717) 656-2301  
332 05667 15.00 041200

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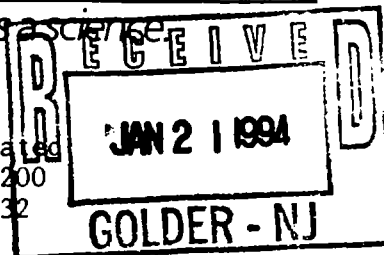
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



LLI Sample No. WW 2061638  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Unspiked Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	< 7. mg/l	7.	020601400P*
The analysis for total suspended solids was performed by DSS on 12/08/93. The method used was EPA 160.2.			
Total Dissolved Solids	770. mg/l	30.	021201500P*
The analysis for total dissolved solids was performed by CLM on 12/13/93. The method used was EPA 160.1.			
Ammonia Nitrogen	3. mg/l	1.	022102800P*
The analysis for ammonia nitrogen was performed by TMG on 12/16/93. The method used was EPA 350.2.			
Biochemical Oxygen Demand	63. mg/l	2.	023503300P*
The analysis for biochemical oxygen demand was performed by JS on 12/07/93. The method used was EPA 405.1.			
Cadmium	< 0.0025 mg/l	0.0025	024901400P*
The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.			
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Total Organic Carbon	25. mg/l	1.	027302500P*
The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC". The analysis for TOC was performed by DE on 12/09/93. The method used was EPA 600, Method 415.1.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061638  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Unspiked Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
Purgeables (SW846/8240A)	attached		150827000P*
P.P. Pesticides (SW846/8080)	attached		159924000P*
Aluminum	0.290 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.045 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	150. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.019 mg/l	0.013	175201400P*
Copper	0.0372 mg/l	0.0050	175301400P*
Iron	0.077 mg/l	0.025	175401400P*
Magnesium	29.1 mg/l	0.025	175701400P*
Manganese	2.35 mg/l	0.0025	175801400P*
Nickel	0.080 mg/l	0.013	176101400P*
Potassium	4.06 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*

The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.

Sodium	39.2 mg/l	1.0	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.127 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.

The method used was USEPA CLP Statement, March 1990.

Chemical Oxygen Demand	100. mg/l	50.	400102900P*
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The analysis for chemical oxygen demand was performed by AMP on 12/10/93.

The method used was EPA 410.4.

Benzoic Acid	< 50. ug/l	50.	900100000P
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900202000P
Diphenyl Sulfone	< 10. ug/l	10.	900302000P

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846,

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LLI Sample No. WW 2061638  
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SP-5 Effluent Unspiked Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93.  
The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/21/93. The  
method used was SW-846, Method 8270A.

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Client Services at (717) 656-2301  
332 05667 30.00 170100

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Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
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Instrumental Water Chemistry

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Mount Laurel, NJ 08054-1232

SP-5 Effluent Unspiked Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061638  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	< 10. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	< 10. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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14:40:11 402466 REP  
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Unspiked Grab Water Sample  
K-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061638  
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Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	< 10. ug/l	10.	393800000P
1,2-dichlorobenzene	< 10. ug/l	10.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	< 10. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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14:40:21 402466 REP  
ASR000 D 1 19  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Unspiked Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061638  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

See reverse side for explanation of symbols and abbreviations





14:40:26 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061638  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Unspiked Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000P
Vinyl Chloride	< 10. ug/l	10.	349200000P
Chloroethane	< 10. ug/l	10.	349400000P
Acrolein	< 100. ug/l	100.	349500000P
Acrylonitrile	< 100. ug/l	100.	349600000P
Methylene Chloride	< 5. ug/l	5.	349700000P
Trichlorofluoromethane	< 5. ug/l	5.	126400000P
1,1-Dichloroethene	< 5. ug/l	5.	350000000P
1,1-Dichloroethane	< 5. ug/l	5.	350100000P
1,2-Dichloroethene (total)	< 5. ug/l	5.	350200000P
Chloroform	< 5. ug/l	5.	350300000P
1,2-Dichloroethane	25. ug/l	5.	350400000P
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000P
Carbon Tetrachloride	< 5. ug/l	5.	350600000P
Bromodichloromethane	< 5. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	10. ug/l	5.	352300000P
1,2-Dichloropropane	< 5. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	< 5. ug/l	5.	351100000P
Dibromochloromethane	< 5. ug/l	5.	351200000P
1,1,2-Trichloroethane	< 5. ug/l	5.	351300000P
Benzene	< 5. ug/l	5.	351500000P
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000P
Bromoform	< 5. ug/l	5.	351800000P
Tetrachloroethene	< 5. ug/l	5.	352200000P
Toluene	< 5. ug/l	5.	352400000P
Chlorobenzene	< 5. ug/l	5.	352500000P
Ethylbenzene	< 5. ug/l	5.	352600000P
Xylene (total)	< 5. ug/l	5.	352900000P

The analysis for GC/MS volatiles was performed by MGB on 12/09/93.  
The method used was EPA SW846 Method 8240A.

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





14:40:48 402466 REP  
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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061638  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Unspiked Grab Water Sample  
K-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 0.01 ug/l	0.01	160000000P
Beta BHC	< 0.01 ug/l	0.01	160100000P
Gamma BHC - Lindane	< 0.01 ug/l	0.01	160200000P
Delta BHC	< 0.01 ug/l	0.01	160300000P
Heptachlor	< 0.01 ug/l	0.01	160400000P
Aldrin	< 0.01 ug/l	0.01	160500000P
Heptachlor Epoxide	< 0.01 ug/l	0.01	160600000P
DDE	< 0.01 ug/l	0.01	160700000P
DDD	< 0.01 ug/l	0.01	160800000P
DDT	< 0.01 ug/l	0.01	160900000P
Dieldrin	< 0.01 ug/l	0.01	161000000P
Endrin	< 0.01 ug/l	0.01	161100000P
Methoxychlor	< 0.05 ug/l	0.05	186000000P
Chlordane	< 0.3 ug/l	0.3	161200000P
Toxaphene	< 4. ug/l	4.	161300000P
Endosulfan I	< 0.01 ug/l	0.01	161600000P
Endosulfan II	< 0.01 ug/l	0.01	161500000P
Endosulfan Sulfate	< 0.03 ug/l	0.03	161700000P
Endrin Aldehyde	< 0.1 ug/l	0.1	161800000P

The analysis for Pesticides was performed by NES on 12/21/93.  
The method used was USEPA SW846 Method 8080.

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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14:39:46 402466 REP

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

JAN 2 1994

GOLDER - NJ

LLI Sample No. VW 2061639  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Unspiked Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010 104503000P*	
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030 105503000P*	
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050 106403000P*	
The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010 107303000P*	
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.212 mg/l	0.050 174301400P*	
Antimony	< 0.050 mg/l	0.050 174401400P*	
Barium	0.046 mg/l	0.025 174601400P*	
Beryllium	< 0.0025 mg/l	0.0025 174701400P*	
Cadmium	< 0.0025 mg/l	0.0025 174901400P*	
Calcium	159. mg/l	1.0 175001400P*	
The analysis for calcium was performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013 175101400P*	
The analysis for chromium was performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.			
Cobalt	0.020 mg/l	0.013 175201400P*	
Copper	0.0348 mg/l	0.0050 175301400P*	
Iron	0.066 mg/l	0.025 175401400P*	
Magnesium	28.7 mg/l	0.025 175701400P*	
Manganese	2.40 mg/l	0.0025 175801400P*	
Nickel	0.084 mg/l	0.013 176101400P*	
Potassium	4.08 mg/l	0.13 176201400P*	
Silver	< 0.0050 mg/l	0.0050 176601400P*	
Sodium	42.0 mg/l	0.10 176701400P*	
Vanadium	< 0.0025 mg/l	0.0025 177101400P*	
Zinc	0.136 mg/l	0.0050 177201400P*	

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Unspiked Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061639  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

## ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

This sample was field filtered for dissolved metals.

The analyses for antimony, potassium, and sodium were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/15/93. The method used was EPA SW-846, Method 6010.

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332 05667 15.00 041200

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

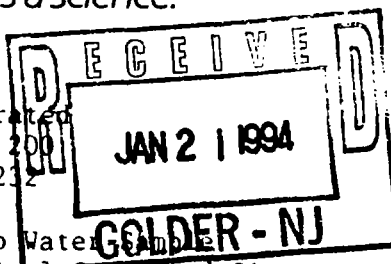
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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1212



SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061640  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF
ANALYSIS	AS RECEIVED	QUANTITATION LAB CODE
Cadmium	0.0113 mg/l	0.0025 024901400P*
The analysis for cadmium was performed by JMH on 12/21/94.		
The method used was EPA SW-846, Method 7130.		
Mercury	0.00094 mg/l	0.00020025902500P*
The analysis for mercury was performed by NSM on 12/08/94.		
The method used was EPA SW-846, Method 7470.		
Arsenic (furnace method)	0.039 mg/l	0.010 104503000P*
The analysis for arsenic was performed by JAS on 12/09/93.		
The method used was EPA SW-846, Method 7060.		
Lead (furnace method)	0.0163 mg/l	0.0030 105503000P*
The analysis for lead was performed by RSR on 12/09/93.		
The method used was EPA SW-846, Method 7421.		
Selenium (furnace method)	0.0094 mg/l	0.0050 106403000P*
The analysis for selenium was performed by EAT on 12/09/93.		
The method used was EPA SW-846, Method 7740.		
Thallium (furnace method)	0.048 mg/l	0.010 107303000P*
The analysis for thallium was performed by RSR on 12/09/93.		
The method used was EPA SW-846, Method 7841.		
Acid Extractables SW846/8270A	attached	142414000P*
Base Neutrals (SW846/8270A)	attached	142540000P*
Base Neut., cont (SW846/8270A)	attached	142600000P*
Purgeables (SW846/8240A)	attached	150827000P*
P.P. Pesticides (SW846/8080)	attached	159924000P*
Aluminum	0.753 mg/l	0.050 174301400P*
Antimony	0.114 mg/l	0.050 174401400P*
Barium	0.504 mg/l	0.025 174601400P*
Beryllium	0.0117 mg/l	0.0025 174701400P*
Calcium	154. mg/l	0.50 175001400P*
Chromium	0.046 mg/l	0.013 175101400P*
Cobalt	0.127 mg/l	0.013 175201400P*
Copper	0.0938 mg/l	0.0050 175301400P*
Iron	0.284 mg/l	0.025 175401400P*
Magnesium	29.1 mg/l	0.025 175701400P*
Manganese	2.43 mg/l	0.0025 175801400P*
Nickel	0.189 mg/l	0.013 176101400P*
Potassium	4.99 mg/l	0.13 176201400P*
Silver	0.0107 mg/l	0.0050 176601400P*

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061640

Date Reported 1/20/94

Date Submitted 12/ 7/93

Discard Date 1/28/94

Collected 12/ 6/93 by JC

Time Collected 1210

P.O. 923-6158

Rel.

SP-5- SDG#

ANALYSIS

RESULT

AS RECEIVED

LIMIT OF

QUANTITATION

LAB CODE

The analysis for silver was performed by NCH on 12/23/93. The method used  
was EPA SW-846, Method 6010.

Sodium	41.1	mg/l	1.0	176701400P*
Vanadium	0.110	mg/l	0.0025	177101400P*
Zinc	0.230	mg/l	0.0050	177201400P*
Total Cyanide	51.8	ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.

The method used was USEPA CLP Statement, March 1990.

Benzoic Acid	59.	ug/l	50.	900100000P
3,4-Dichloronitrobenzene	86.	ug/l	50.	900202000P
Diphenyl Sulfone	82.	ug/l	10.	900302000P

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010..

The analyses for calcium and sodium were performed by RSJ on 12/17/93.

The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/21/93. The method used was SW-846, Method 8270A.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 155700

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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14:39:06 402466 REP

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061640

Date Reported 1/20/94

Date Submitted 12/ 7/93

Discard Date 1/28/94

Collected 12/ 6/93 by JC

Time Collected 1210

P.O. 923-6158

Rel.

SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	93. ug/l	10.	392400000P
phenol	48. ug/l	10.	392500000P
2-nitrophenol	99. ug/l	10.	392600000P
2,4-dimethylphenol	81. ug/l	10.	392700000P
2,4-dichlorophenol	89. ug/l	10.	392800000P
4-chloro-3-methylphenol	93. ug/l	10.	392900000P
2,4,6-trichlorophenol	94. ug/l	10.	393000000P
2,4-dinitrophenol	160. ug/l	25.	393100000P
4-nitrophenol	49. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	120. ug/l	25.	393300000P
pentachlorophenol	110. ug/l	25.	393400000P

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Lancaster, PA 17601-5994  
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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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14:39:12 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061640  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Base Neutrals (SW846/8270A)			
N-nitrosodimethylamine	67. ug/l	10.	393500000P
bis (2-chloroethyl) ether	95. ug/l	10.	393600000P
1,3-dichlorobenzene	89. ug/l	10.	393700000P
1,4-dichlorobenzene	85. ug/l	10.	393800000P
1,2-dichlorobenzene	86. ug/l	10.	393900000P
bis (2-chloroisopropyl) ether	100. ug/l	10.	394000000P
hexachloroethane	84. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	100. ug/l	10.	394200000P
nitrobenzene	94. ug/l	10.	394300000P
isophorone	93. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	94. ug/l	10.	394500000P
1,2,4-trichlorobenzene	87. ug/l	10.	394600000P
naphthalene	87. ug/l	10.	394700000P
hexachlorobutadiene	77. ug/l	10.	394800000P
hexachlorocyclopentadiene	170. ug/l	10.	394900000P
2-chloronaphthalene	87. ug/l	10.	395000000P
acenaphthylene	91. ug/l	10.	395100000P
dimethyl phthalate	83. ug/l	10.	395200000P
2,6-dinitrotoluene	100. ug/l	10.	395300000P
acenaphthene	92. ug/l	10.	395400000P
2,4-dinitrotoluene	110. ug/l	10.	395500000P
fluorene	86. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	85. ug/l	10.	395700000P
diethyl phthalate	90. ug/l	10.	395800000P
1,2-diphenylhydrazine	99. ug/l	10.	395900000P
N-nitrosodiphenylamine	110. ug/l	10.	396000000P
4-bromophenyl phenyl ether	91. ug/l	10.	396100000P
hexachlorobenzene	94. ug/l	10.	396200000P
phenanthrene	93. ug/l	10.	396300000P

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Group Leader, GC/MS

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14:39:25 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061640  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	86. ug/l	10.	396400000P
di-n-butyl phthalate	88. ug/l	10.	396500000P
fluoranthene	96. ug/l	10.	396600000P
pyrene	100. ug/l	10.	396700000P
benzidine	280. ug/l	100.	396800000P
butyl benzyl phthalate	100. ug/l	10.	396900000P
benzo (a) anthracene	97. ug/l	10.	397000000P
chrysene	96. ug/l	10.	397100000P
3,3'-dichlorobenzidine	97. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	100. ug/l	10.	397300000P
di-n-octyl phthalate	95. ug/l	10.	397400000P
benzo (b) fluoranthene	87. ug/l	10.	397500000P
benzo (K) fluoranthene	87. ug/l	10.	397600000P
benzo (a) pyrene	82. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	80. ug/l	10.	397800000P
dibenz (a,h) anthracene	89. ug/l	10.	397900000P
benzo (ghi) perylene	80. ug/l	10.	398000000P

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Group Leader, GC/MS

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14:39:28 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061640  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	34. ug/l	10.	125800000P
Bromomethane	18. ug/l	10.	125700000P
Vinyl Chloride	26. ug/l	10.	349200000P
Chloroethane	26. ug/l	10.	349400000P
Acrolein	140. ug/l	100.	349500000P
Acrylonitrile	140. ug/l	100.	349600000P
Methylene Chloride	21. ug/l	5.	349700000P
Trichlorofluoromethane	21. ug/l	5.	126400000P
1,1-Dichloroethene	20. ug/l	5.	350000000P
1,1-Dichloroethane	21. ug/l	5.	350100000P
1,2-Dichloroethene (total)	46. ug/l	5.	350200000P
Chloroform	22. ug/l	5.	350300000P
1,2-Dichloroethane	44. ug/l	5.	350400000P
1,1,1-Trichloroethane	24. ug/l	5.	350500000P
Carbon Tetrachloride	22. ug/l	5.	350600000P
Bromodichloromethane	24. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	30. ug/l	5.	352300000P
1,2-Dichloropropane	21. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	23. ug/l	5.	351100000P
Dibromochloromethane	21. ug/l	5.	351200000P
1,1,2-Trichloroethane	20. ug/l	5.	351300000P
Benzene	24. ug/l	5.	351500000P
cis-1,3-Dichloropropene	21. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	20. ug/l	10.	364500000P
Bromoform	20. ug/l	5.	351800000P
Tetrachloroethene	23. ug/l	5.	352200000P
Toluene	22. ug/l	5.	352400000P
Chlorobenzene	22. ug/l	5.	352500000P
Ethylbenzene	22. ug/l	5.	352600000P
Xylene (total)	59. ug/l	5.	352900000P

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





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14:39:36 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061640  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
P.P. Pesticides (SW846/8080)			
Alpha BHC	0.17 ug/l	0.01	160000000P
Beta BHC	0.19 ug/l	0.01	160100000P
Gamma BHC - Lindane	0.19 ug/l	0.01	160200000P
Delta BHC	0.20 ug/l	0.01	160300000P
Heptachlor	0.17 ug/l	0.01	160400000P
Aldrin	0.16 ug/l	0.01	160500000P
Heptachlor Epoxide	0.21 ug/l	0.01	160600000P
DDE	0.18 ug/l	0.01	160700000P
DDD	0.15 ug/l	0.01	160800000P
DDT	0.19 ug/l	0.01	160900000P
Dieldrin	0.21 ug/l	0.01	161000000P
Endrin	0.22 ug/l	0.01	161100000P
Methoxychlor	0.59 ug/l	0.05	186000000P
Chlordane	< 0.3 ug/l	0.3	161200000P
Toxaphene	< 4. ug/l	4.	161300000P
Endosulfan I	0.18 ug/l	0.01	161600000P
Endosulfan II	0.17 ug/l	0.01	161500000P
Endosulfan Sulfate	0.17 ug/l	0.03	161700000P
Endrin Aldehyde	0.2 ug/l	0.1	161800000P

The analysis for Pesticides was performed by NES on 12/18/93.  
The method used was USEPA SW846 Method 8080.

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

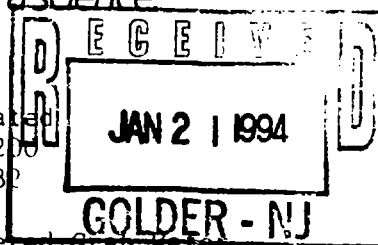
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Mount Laurel, NJ 08054-1232



SP-5 Effluent Matrix Spike Filtered Grab Water  
R N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061641  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SDG#	RESULT	LIMIT OF
ANALYSIS	AS RECEIVED	QUANTITATION LAB CODE
Mercury	0.00097 mg/l	0.00020025902500P*
The analysis for mercury was performed by NSM on 12/08/94.		
The method used was EPA SW-846, Method 7470.		
Arsenic (furnace method)	0.039 mg/l	0.010 104503000P*
The analysis for arsenic was performed by JAS on 12/09/93.		
The method used was EPA SW-846, Method 7060.		
Lead (furnace method)	0.0165 mg/l	0.0030 105503000P*
The analysis for lead was performed by RSR on 12/09/93.		
The method used was EPA SW-846, Method 7421.		
Selenium (furnace method)	0.0092 mg/l	0.0050 106403000P*
The analysis for selenium was performed by EAT on 12/09/93.		
The method used was EPA SW-846, Method 7740.		
Thallium (furnace method)	0.045 mg/l	0.010 107303000P*
The analysis for thallium was performed by RSR on 12/09/93.		
The method used was EPA SW-846, Method 7841.		
Aluminum	0.665 mg/l	0.050 174301400P*
Antimony	0.112 mg/l	0.050 174401400P
Barium	0.508 mg/l	0.025 174601400P*
Beryllium	0.0118 mg/l	0.0025 174701400P*
Cadmium	0.0109 mg/l	0.0025 174901400P*
Calcium	157. mg/l	1.0 175001400P*
The analysis for calcium was performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.		
Chromium	0.046 mg/l	0.013 175101400P*
The analysis for chromium was performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.		
Cobalt	0.127 mg/l	0.013 175201400P*
Copper	0.0909 mg/l	0.0050 175301400P*
Iron	0.262 mg/l	0.025 175401400P*
Magnesium	28.2 mg/l	0.025 175701400P*
Manganese	2.41 mg/l	0.0025 175801400P*
Nickel	0.189 mg/l	0.013 176101400P*
Potassium	4.88 mg/l	0.13 176201400P
Silver	0.0120 mg/l	0.0050 176601400P*
Sodium	39.0 mg/l	0.10 176701400P
Vanadium	0.111 mg/l	0.0025 177101400P*
Zinc	0.220 mg/l	0.0050 177201400P*

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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14:38:38 402466 REP  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061641  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Matrix Spike Filtered Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

- SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

This sample was field filtered for dissolved metals.

The analyses for antimony, potassium, and sodium were performed by NCH on 12/15/93. The method used was EPA SW-846, Method 6010. The analyses for aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/15/93. The method used was EPA SW-846, Method 6010.

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332 05667 15.00 041200

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717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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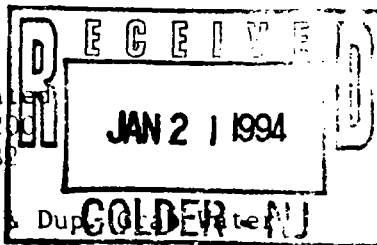
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



SP-5 Effluent Matrix Spike Dup. & Dup. Lead & Cadmium  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
Cadmium	< 0.0025 mg/l	0.0025	024901400P*
The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.			
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
Purgeables (SW846/8240A)	attached		150827000P*
P.P. Pesticides (SW846/8080)	attached		159924000P*
Aluminum	0.270 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.043 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	150. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.018 mg/l	0.013	175201400P*
Copper	0.0361 mg/l	0.0050	175301400P*
Iron	0.071 mg/l	0.025	175401400P*
Magnesium	28.3 mg/l	0.025	175701400P*
Manganese	2.29 mg/l	0.0025	175801400P*
Nickel	0.078 mg/l	0.013	176101400P*
Potassium	3.97 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Dup. & Dup. Grab Water  
K-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analysis for silver was performed by NCH on 12/27/93. The method used was EPA SW-846, Method 6010.

Sodium	39.7	mg/l	1.0	176701400P*
Vanadium	< 0.0025	mg/l	0.0025	177101400P*
Zinc	0.124	mg/l	0.0050	177201400P*
Total Cyanide	< 5.0	ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/10/93.

The method used was USEPA CLP Statement, March 1990.

Benzoic Acid	59.	ug/l	50.	900100000P
3,4-Dichloronitrobenzene	94.	ug/l	50.	900202000P
Diphenyl Sulfone	88.	ug/l	50.	900302000P

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/21/93. The method used was SW-846, Method 8270A.

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Client Services at (717) 656-2301  
332 05667 30.00 155700

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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14:37:54 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Matrix Spike Dup. & Dup. Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	95. ug/l	10.	392400000P
phenol	50. ug/l	10.	392500000P
2-nitrophenol	100. ug/l	10.	392600000P
2,4-dimethylphenol	78. ug/l	10.	392700000P
2,4-dichlorophenol	94. ug/l	10.	392800000P
4-chloro-3-methylphenol	95. ug/l	10.	392900000P
2,4,6-trichlorophenol	95. ug/l	10.	393000000P
2,4-dinitrophenol	130. ug/l	25.	393100000P
4-nitrophenol	48. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	110. ug/l	25.	393300000P
pentachlorophenol	97. ug/l	25.	393400000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Dup. & Dup. Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	69. ug/l	10.	393500000P
bis (2-chloroethyl) ether	97. ug/l	10.	393600000P
1,3-dichlorobenzene	90. ug/l	10.	393700000P
1,4-dichlorobenzene	90. ug/l	10.	393800000P
1,2-dichlorobenzene	91. ug/l	10.	393900000P
bis (2-chloroisopropyl) ether	100. ug/l	10.	394000000P
hexachloroethane	84. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	100. ug/l	10.	394200000P
nitrobenzene	96. ug/l	10.	394300000P
isophorone	96. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	99. ug/l	10.	394500000P
1,2,4-trichlorobenzene	90. ug/l	10.	394600000P
naphthalene	91. ug/l	10.	394700000P
hexachlorobutadiene	79. ug/l	10.	394800000P
hexachlorocyclopentadiene	180. ug/l	10.	394900000P
2-chloronaphthalene	88. ug/l	10.	395000000P
acenaphthylene	92. ug/l	10.	395100000P
dimethyl phthalate	86. ug/l	10.	395200000P
2,6-dinitrotoluene	100. ug/l	10.	395300000P
acenaphthene	94. ug/l	10.	395400000P
2,4-dinitrotoluene	110. ug/l	10.	395500000P
fluorene	88. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	87. ug/l	10.	395700000P
diethyl phthalate	96. ug/l	10.	395800000P
1,2-diphenylhydrazine	98. ug/l	10.	395900000P
N-nitrosodiphenylamine	110. ug/l	10.	396000000P
4-bromophenyl phenyl ether	88. ug/l	10.	396100000P
hexachlorobenzene	92. ug/l	10.	396200000P
phenanthrene	93. ug/l	10.	396300000P

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Lancaster, PA 17601-5994  
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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Dup. & Dup. Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	86. ug/l	10.	396400000P
di-n-butyl phthalate	89. ug/l	10.	396500000P
fluoranthene	94. ug/l	10.	396600000P
pyrene	100. ug/l	10.	396700000P
benzidine	310. ug/l	100.	396800000P
butyl benzyl phthalate	100. ug/l	10.	396900000P
benzo (a) anthracene	99. ug/l	10.	397000000P
chrysene	97. ug/l	10.	397100000P
3,3'-dichlorobenzidine	100. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	100. ug/l	10.	397300000P
di-n-octyl phthalate	91. ug/l	10.	397400000P
benzo (b) fluoranthene	87. ug/l	10.	397500000P
benzo (K) fluoranthene	82. ug/l	10.	397600000P
benzo (a) pyrene	82. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	84. ug/l	10.	397800000P
dibenz (a,h) anthracene	93. ug/l	10.	397900000P
benzo (ghi) perylene	85. ug/l	10.	398000000P

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Group Leader, GC/MS

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14:38:17 402466 REP  
ASR000 D 1 19  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5 Effluent Matrix Spike Dup. & Dup. Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	38. ug/l	10.	125800000P
Bromomethane	19. ug/l	10.	125700000P
Vinyl Chloride	27. ug/l	10.	349200000P
Chloroethane	26. ug/l	10.	349400000P
Acrolein	170. ug/l	100.	349500000P
Acrylonitrile	180. ug/l	100.	349600000P
Methylene Chloride	21. ug/l	5.	349700000P
Trichlorofluoromethane	22. ug/l	5.	126400000P
1,1-Dichloroethene	19. ug/l	5.	350000000P
1,1-Dichloroethane	22. ug/l	5.	350100000P
1,2-Dichloroethene (total)	45. ug/l	5.	350200000P
Chloroform	23. ug/l	5.	350300000P
1,2-Dichloroethane	42. ug/l	5.	350400000P
1,1,1-Trichloroethane	23. ug/l	5.	350500000P
Carbon Tetrachloride	22. ug/l	5.	350600000P
Bromodichloromethane	24. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	31. ug/l	5.	352300000P
1,2-Dichloropropane	22. ug/l	5.	350900000P
trans-1,3-Dichloropropene	5. ug/l	5.	351000000P
Trichloroethene	23. ug/l	5.	351100000P
Dibromochloromethane	22. ug/l	5.	351200000P
1,1,2-Trichloroethane	22. ug/l	5.	351300000P
Benzene	24. ug/l	5.	351500000P
cis-1,3-Dichloropropene	22. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	24. ug/l	10.	364500000P
Bromoform	21. ug/l	5.	351800000P
Tetrachloroethene	22. ug/l	5.	352200000P
Toluene	22. ug/l	5.	352400000P
Chlorobenzene	23. ug/l	5.	352500000P
Ethylbenzene	22. ug/l	5.	352600000P
Xylene (total)	61. ug/l	5.	352900000P

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Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





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14:38:26 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Matrix Spike Dup. & Dup. Grab Water  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061642  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

SP-5- SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	0.15 ug/l	0.01	160000000P
Beta BHC	0.16 ug/l	0.01	160100000P
Gamma BHC - Lindane	0.17 ug/l	0.01	160200000P
Delta BHC	0.18 ug/l	0.01	160300000P
Heptachlor	0.15 ug/l	0.01	160400000P
Aldrin	0.14 ug/l	0.01	160500000P
Heptachlor Epoxide	0.17 ug/l	0.01	160600000P
DDE	0.17 ug/l	0.01	160700000P
DDD	0.15 ug/l	0.01	160800000P
DDT	0.18 ug/l	0.01	160900000P
Dieldrin	0.19 ug/l	0.01	161000000P
Endrin	0.20 ug/l	0.01	161100000P
Methoxychlor	0.48 ug/l	0.05	186000000P
Chlordane	< 0.3 ug/l	0.3	161200000P
Toxaphene	< 4. ug/l	4.	161300000P
Endosulfan I	0.16 ug/l	0.01	161600000P
Endosulfan II	0.14 ug/l	0.01	161500000P
Endosulfan Sulfate	0.19 ug/l	0.03	161700000P
Endrin Aldehyde	0.2 ug/l	0.1	161800000P

The analysis for Pesticides was performed by NES on 12/18/93.  
The method used was USEPA SW846 Method 8080.

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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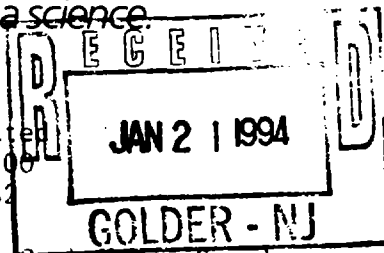


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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



SP-5 Effluent Duplicate Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061643  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/09/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.192 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P
Barium	0.046 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	159. mg/l	1.0	175001400P*
The analysis for calcium was performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.			
Chromium	< 0.013 mg/l	0.013	175101400P*
The analysis for chromium was performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.			
Cobalt	0.020 mg/l	0.013	175201400P*
Copper	0.0322 mg/l	0.0050	175301400P*
Iron	0.045 mg/l	0.025	175401400P*
Magnesium	29.4 mg/l	0.025	175701400P*
Manganese	2.45 mg/l	0.0025	175801400P*
Nickel	0.086 mg/l	0.013	176101400P*
Potassium	4.08 mg/l	0.13	176201400P
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	40.0 mg/l	0.10	176701400P
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.137 mg/l	0.0050	177201400P*

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations







14:37:30 402466 REP  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Duplicate Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061643  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1210  
P.O. 923-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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This sample was field filtered for dissolved metals.

The analyses for antimony, potassium, and sodium were performed by NCH on 12/15/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/15/93. The method used was EPA SW-846, Method 6010.

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332 05667 15.00 041200



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Lancaster, PA 17601-5994  
717-656-2301

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Lancaster Laboratories, Inc.

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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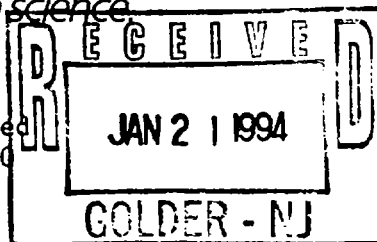


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Mount Laurel, NJ 08054-1232



LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T 1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

FIELD- SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Cadmium	< 0.0025 mg/l	0.0025	024901400P*
The analysis for cadmium was performed by JMH on 12/21/94. The method used was EPA SW-846, Method 7130.			
Mercury	< 0.00020 mg/l	0.00020	025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
Purgeables (SW846/8240A)	attached		150827000P*
P.P. Pesticides (SW846/8080)	attached		159924000P
Aluminum	29.0 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.034 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Calcium	230. mg/l	0.50	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.039 mg/l	0.013	175201400P*
Copper	0.0148 mg/l	0.0050	175301400P*
Iron	22.5 mg/l	0.025	175401400P*
Magnesium	47.2 mg/l	0.025	175701400P*
Manganese	4.70 mg/l	0.0025	175801400P*
Nickel	0.084 mg/l	0.013	176101400P*
Potassium	5.71 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

TIFD- SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
The analysis for silver was performed by NCH on 12/23/93. The method used was EPA SW-846, Method 6010.			
Sodium	72.4 mg/l	1.0	176701400P*
Vanadium	0.0152 mg/l	0.0025	177101400P*
Zinc	0.252 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*
The analysis for total cyanide was performed by SAH on 12/10/93. The method used was USEPA CLP Statement, March 1990.			
Benzoic Acid	18,000. ug/l	10,000.	900100000P
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900202000P
Diphenyl Sulfone	2,200. ug/l	2,000.	900302000P

The analyses for aluminum, antimony, barium, beryllium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, vanadium, and zinc were performed by NCH on 12/13/93. The method used was EPA SW-846, Method 6010.

The analyses for calcium and sodium were performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/22/93. The method used was SW-846, Method 8270A.

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332 05667 30.00 155700

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LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent/PD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

T1FD- SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	< 10. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	60. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Lancaster, PA 17601-5994  
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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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05667 0

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T-1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T1FD- SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	69. ug/l	10.	393800000P
1,2-dichlorobenzene	9,500. ug/l	2,000.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	23. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

T1FD- SDG#	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Base Neut., cont (SW846/8270A)			
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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14:37:00 402466 REP  
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Mount Laurel, NJ 08054-1232

T-1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T1FD- SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 500. ug/l	500.	125800000P
Bromomethane	< 500. ug/l	500.	125700000P
Vinyl Chloride	< 500. ug/l	500.	349200000P
Chloroethane	< 500. ug/l	500.	349400000P
Acrolein	< 5,000. ug/l	5,000.	349500000P
Acrylonitrile	< 5,000. ug/l	5,000.	349600000P
Methylene Chloride	< 250. ug/l	250.	349700000P
Trichlorofluoromethane	< 250. ug/l	250.	126400000P
1,1-Dichloroethene	< 250. ug/l	250.	350000000P
1,1-Dichloroethane	< 250. ug/l	250.	350100000P
1,2-Dichloroethene (total)	2,800. ug/l	250.	350200000P
Chloroform	< 250. ug/l	250.	350300000P
1,2-Dichloroethane	3,000. ug/l	250.	350400000P
1,1,1-Trichloroethane	< 250. ug/l	250.	350500000P
Carbon Tetrachloride	< 250. ug/l	250.	350600000P
Bromodichloromethane	< 250. ug/l	250.	350800000P
1,1,2,2-Tetrachloroethane	7,600. ug/l	250.	352300000P
1,2-Dichloropropane	< 250. ug/l	250.	350900000P
trans-1,3-Dichloropropene	< 250. ug/l	250.	351000000P
Trichloroethene	3,600. ug/l	250.	351100000P
Dibromochloromethane	< 250. ug/l	250.	351200000P
1,1,2-Trichloroethane	< 250. ug/l	250.	351300000P
Benzene	11,000. ug/l	250.	351500000P
cis-1,3-Dichloropropene	< 250. ug/l	250.	351600000P
2-Chloroethyl Vinyl Ether	< 500. ug/l	500.	364500000P
Bromoform	< 250. ug/l	250.	351800000P
Tetrachloroethene	7,800. ug/l	250.	352200000P
Toluene	1,300. ug/l	250.	352400000P
Chlorobenzene	550. ug/l	250.	352500000P
Ethylbenzene	< 250. ug/l	250.	352600000P
Xylene (total)	< 250. ug/l	250.	352900000P

The quantitation limits for the GC/MS volatile compounds were raised because sample dilution was necessary to bring target compounds into the calibration range of the system.

The analysis for GC/MS volatiles was performed by TSS on 12/09/93.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





14:37:00 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061644  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T1FD- SDG#  
Purgeables (SW846/8240A)  
The method used was EPA SW846 Method 8240A.

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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14:37:11 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent/FD Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. WW 2061644  
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Date Submitted 12/ 7/93  
Discard Date 1/28/94  
Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T1FD- SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 1. ug/l	1.	160000000P
Beta BHC	< 0.1 ug/l	0.1	160100000P
Gamma BHC - Lindane	< 0.1 ug/l	0.1	160200000P
Delta BHC	< 0.1 ug/l	0.1	160300000P
Heptachlor	< 0.1 ug/l	0.1	160400000P
Aldrin	< 0.1 ug/l	0.1	160500000P
Heptachlor Epoxide	< 0.1 ug/l	0.1	160600000P
DDE	< 0.1 ug/l	0.1	160700000P
DDD	< 0.1 ug/l	0.1	160800000P
DDT	< 0.1 ug/l	0.1	160900000P
Dieldrin	< 0.1 ug/l	0.1	161000000P
Endrin	< 0.1 ug/l	0.1	161100000P
Methoxychlor	< 0.5 ug/l	0.5	186000000P
Chlordane	< 3. ug/l	3.	161200000P
Toxaphene	< 40. ug/l	40.	161300000P
Endosulfan I	< 0.1 ug/l	0.1	161600000P
Endosulfan II	< 0.1 ug/l	0.1	161500000P
Endosulfan Sulfate	< 0.3 ug/l	0.3	161700000P
Endrin Aldehyde	< 1. ug/l	1.	161800000P
PCB-1016	< 10. ug/l	10.	161900000P
PCB-1221	< 10. ug/l	10.	162000000P
PCB-1232	< 10. ug/l	10.	162100000P
PCB-1242	< 10. ug/l	10.	162200000P
PCB-1248	< 10. ug/l	10.	162300000P
PCB-1254	< 10. ug/l	10.	162400000P
PCB-1260	< 10. ug/l	10.	162600000P

The analysis for Pesticides was performed by NES on 12/30/93.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September 1986.

Due to interfering peaks on the chromatogram, the values reported represent  
the lowest quantitation limits obtainable. Despite numerous clean-up  
methods, we were unable to reach our usual quantitation limits.

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

See reverse side for explanation of symbols and abbreviations





**Lancaster Laboratories**

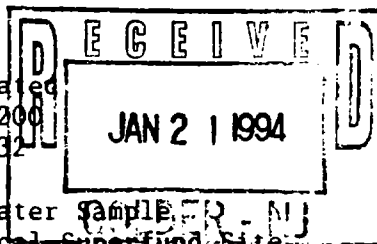
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LLI Sample No. WW 2061645

Date Reported 1/20/94

Date Submitted 12/ 7/93

Discard Date 1/28/94

Collected 12/ 6/93 by JC

Time Collected 1110

P.O. 923-6158

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T-1 Influent/FD Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Mercury	< 0.00020 mg/l	0.00020	20025902500P*
The analysis for mercury was performed by NSM on 12/08/94. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/09/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	0.0134 mg/l	0.0030	105503000P*
The analysis for lead was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RSR on 12/09/93. The method used was EPA SW-846, Method 7841.			
Aluminum	17.9 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.033 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Calcium	231. mg/l	1.0	175001400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	0.040 mg/l	0.013	175201400P*
Copper	0.0367 mg/l	0.0050	175301400P*
Iron	22.1 mg/l	0.025	175401400P*
Magnesium	46.0 mg/l	0.025	175701400P*
Manganese	4.73 mg/l	0.0025	175801400P*
Nickel	0.122 mg/l	0.013	176101400P*
Potassium	5.48 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	70.5 mg/l	0.10	176701400P*
The analysis for sodium was performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.			
Vanadium	0.0067 mg/l	0.0025	177101400P*
Zinc	0.442 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

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717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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LLI Sample No. WW 2061645  
Date Reported 1/20/94  
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Collected 12/ 6/93 by JC  
Time Collected 1110  
P.O. 923-6158  
Rel.

T-1 Influent/PD Filtered Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
The analyses for antimony, aluminum, barium, beryllium, cadmium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, silver, vanadium, and zinc were performed by NCH on 12/15/93. The method used was EPA SW-846, Method 6010. The analyses for calcium and chromium were performed by RSJ on 12/17/93. The method used was EPA SW-846, Method 6010.			

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332 05667 15.00 041200

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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9 13

**Day Eight (12/8/93) Results**



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15:39:02 402840 REP  
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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063219  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1045  
P.O. 933-6158  
Rel.

T-1 Influent (Surge Tank) Grab Water Sample  
Nease Chemical Superfund Site

SURGE SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids The analysis for total suspended solids was performed by DSS on 12/13/93. The method used was EPA 160.2.	30. mg/l	20.	020601400P*
Total Dissolved Solids The analysis for total dissolved solids was performed by CLM on 12/15/93. The method used was EPA 160.1.	690. mg/l	30.	021201500P*
Ammonia Nitrogen The analysis for ammonia nitrogen was performed by TMG on 12/22/93. The method used was EPA 350.2.	< 1. mg/l	1.	022102800P*
Biochemical Oxygen Demand The analysis for biochemical oxygen demand was initially performed by JS on 12/09/93. The result was < 60 mg/l. Because the chosen aliquots did not yield acceptable final dissolved oxygen readings, the analysis was repeated by JS on 12/16/93. The method used was EPA 405.1.	43. mg/l	2.	023503300P*
Calcium The analysis for calcium was performed by NW on 12/27/93. The method used was EPA SW-846, Method 7140.	134. mg/l	0.20	025001400P*
Mercury The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.	< 0.00020 mg/l	0.00020025902500P*	
Total Organic Carbon The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC". The analysis for TOC was performed by DE on 12/16/93. The method used was EPA 600, Method 415.1.	28. mg/l	1.	027302500P*
Arsenic (furnace method) The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.	< 0.010 mg/l	0.010	104503000P*
Lead (furnace method) The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.	< 0.0030 mg/l	0.0030	105503000P*
Selenium (furnace method) The analysis for selenium was performed by BB on 12/15/93. The method used was EPA SW-846, Method 7740.	< 0.0050 mg/l	0.0050	106403000P*
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent (Surge Tank) Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063219  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1045  
P.O. 933-6158  
Rel.

SURGE SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
Purgeables (SW846/8240A)	attached		150827000P*
P.P. Pesticides (SW846/8080)	attached		159924000P*
Aluminum	2.87 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.043 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	5.63 mg/l	0.025	175401400P*
Magnesium	22.1 mg/l	0.025	175701400P*
Manganese	1.18 mg/l	0.0025	175801400P*
Nickel	0.013 mg/l	0.013	176101400P*
Potassium	3.55 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	31.7 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.013 mg/l	0.010	177201400P
Total Cyanide	< 5.0 ug/l	5.0	334304000P*
The analysis for total cyanide was performed by SAH on 12/14/93. The method used was USEPA CLP Statement, March 1990.			
Chemical Oxygen Demand	100. mg/l	50.	400102900P*
The analysis for chemical oxygen demand was performed by AMP on 12/15/93. The method used was EPA 410.4.			
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900102000P
Diphenyl Sulfone	300. ug/l	100.	900202000P
Benzoic Acid	1,500. ug/l	500.	900300000P

The analyses for barium, beryllium, cobalt, iron, manganese, nickel, silver, vanadium and zinc were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:39:02 402840 REP  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent (Surge Tank) Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063219  
Date Reported 1/25/94  
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SURGE SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analyses for antimony, cadmium, copper, potassium, and sodium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, and magnesium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/23/93. The method used was SW-846, Method 8270A.

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332 05667 30.00 170100

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15:39:10 402840 REP  
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Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
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T-1 Influent (Surge Tank) Grab Water Sample  
Nease Chemical Superfund Site

SURGE SDG#	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Acid Extractables SW846/8270A	< 10. ug/l	10.	392400000P
2-chlorophenol	< 10. ug/l	10.	392500000P
phenol	< 10. ug/l	10.	392600000P
2-nitrophenol	< 10. ug/l	10.	392700000P
2,4-dimethylphenol	< 10. ug/l	10.	392800000P
2,4-dichlorophenol	< 10. ug/l	10.	392900000P
4-chloro-3-methylphenol	< 10. ug/l	10.	393000000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393100000P
2,4-dinitrophenol	< 25. ug/l	25.	393200000P
4-nitrophenol	< 25. ug/l	25.	393300000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393400000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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15:39:19 402840 REP  
ASR000 D 1 14  
05667 0

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SURGE SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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SURGE SDG#	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Base Neutrals (SW846/8270A)			
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	19. ug/l	10.	393800000P
1,2-dichlorobenzene	1,500. ug/l	100.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	< 10. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Group Leader, GC/MS

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9 139



15:39:22 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

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Nease Chemical Superfund Site

SURGE SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000P
Vinyl Chloride	< 10. ug/l	10.	349200000P
Chloroethane	< 10. ug/l	10.	349400000P
Acrolein	< 100. ug/l	100.	349500000P
Acrylonitrile	< 100. ug/l	100.	349600000P
Methylene Chloride	< 5. ug/l	5.	349700000P
Trichlorofluoromethane	< 5. ug/l	5.	126400000P
1,1-Dichloroethene	< 5. ug/l	5.	350000000P
1,1-Dichloroethane	< 5. ug/l	5.	350100000P
1,2-Dichloroethene (total)	150. ug/l	5.	350200000P
Chloroform	< 5. ug/l	5.	350300000P
1,2-Dichloroethane	15. ug/l	5.	350400000P
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000P
Carbon Tetrachloride	< 5. ug/l	5.	350600000P
Bromodichloromethane	< 5. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	36. ug/l	5.	352300000P
1,2-Dichloropropane	< 5. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	35. ug/l	5.	351100000P
Dibromochloromethane	< 5. ug/l	5.	351200000P
1,1,2-Trichloroethane	< 5. ug/l	5.	351300000P
Benzene	49. ug/l	5.	351500000P
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000P
Bromoform	< 5. ug/l	5.	351800000P
Tetrachloroethene	86. ug/l	5.	352200000P
Toluene	10. ug/l	5.	352400000P
Chlorobenzene	8. ug/l	5.	352500000P
Ethylbenzene	< 5. ug/l	5.	352600000P
Xylene (total)	< 5. ug/l	5.	352900000P

The GC/MS volatile sample was preserved with 1 + 1 HCl to pH < 2. Low recovery of acid labile compounds, such as 2-chloroethyl vinyl ether, is likely to occur.

The analysis for GC/MS volatiles was performed by MGB on 12/10/93.  
The method used was EPA SW846 Method 8240A.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations



\* 221E  
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15:39:22 402840 REP  
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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

T-1 Influent (Surge Tank) Grab Water Sample  
Nease Chemical Superfund Site

SURGE SDG#  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

LLI Sample No. WW 2063219  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1045  
P.O. 933-6158  
Rel.

LIMIT OF  
QUANTITATION LAB CODE

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Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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LLI Sample No. WW 2063219  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1045  
P.O. 933-6158  
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T-1 Influent (Surge Tank) Grab Water Sample  
Nease Chemical Superfund Site

SURGE SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 0.05 ug/l	0.05	160000000P
Beta BHC	< 0.05 ug/l	0.05	160100000P
Gamma BHC - Lindane	< 0.05 ug/l	0.05	160200000P
Delta BHC	< 0.08 ug/l	0.08	160300000P
Heptachlor	< 0.05 ug/l	0.05	160400000P
Aldrin	< 0.02 ug/l	0.02	160500000P
Heptachlor Epoxide	< 0.01 ug/l	0.01	160600000P
DDE	< 0.01 ug/l	0.01	160700000P
DDD	< 0.01 ug/l	0.01	160800000P
DDT	< 0.01 ug/l	0.01	160900000P
Dieldrin	< 0.05 ug/l	0.05	161000000P
Endrin	< 0.01 ug/l	0.01	161100000P
Methoxychlor	< 0.3 ug/l	0.3	186000000P
Chlordane	< 0.3 ug/l	0.3	161200000P
Toxaphene	< 4. ug/l	4.	161300000P
Endosulfan I	< 0.01 ug/l	0.01	161600000P
Endosulfan II	< 0.05 ug/l	0.05	161500000P
Endosulfan Sulfate	< 0.08 ug/l	0.08	161700000P
Endrin Aldehyde	< 0.1 ug/l	0.1	161800000P

The analysis for Pesticides was performed by NES on 12/22/93.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September 1986.

Due to interfering peaks on the chromatogram, the values reported represent  
the lowest quantitation limits obtainable. Despite numerous clean-up  
methods, we were unable to reach our usual quantitation limits.

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Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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LLI Sample No. WW 2063220  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1045  
P.O. 933-6158  
Rel.

T-1 Influent (Surge Tank) Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	135. mg/l	0.20	025001400P*
The analysis for calcium was performed by NW on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BB on 12/15/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.141 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.041 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	5.04 mg/l	0.025	175401400P*
Magnesium	22.9 mg/l	0.025	175701400P*
Manganese	1.21 mg/l	0.0025	175801400P*
Nickel	0.017 mg/l	0.013	176101400P*
Potassium	3.54 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	31.9 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.025 mg/l	0.010	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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LLI Sample No. WW 2063220  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1045  
P.O. 933-6158  
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T-1 Influent (Surge Tank) Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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The analyses for barium, beryllium, cobalt, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

The analyses for antimony, cadmium, copper, potassium, and sodium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, and magnesium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for zinc was performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

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332 05667 15.00 041200

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SP-1 Influent to Air Stripper Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063221  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1047  
P.O. 933-6158  
Rel.

ARSTR SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	30. mg/l	10.	020601400P*
The analysis for total suspended solids was performed by DSS on 12/13/93. The method used was EPA 160.2.			
Calcium	138. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BB on 12/15/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Purgeables (SW846/8240A)	attached		150827000P*
Aluminum	2.32 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.045 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	5.43 mg/l	0.025	175401400P*
Magnesium	22.3 mg/l	0.025	175701400P*
Manganese	1.14 mg/l	0.0025	175801400P*
Nickel	0.013 mg/l	0.013	176101400P*
Potassium	3.61 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	30.0 mg/l	0.10	176701400P*

Questions? Contact Environmental  
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Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063221  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1047  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
Nease Chemical Superfund Site

ARSTR SDG#	RESULT	LIMIT OF	LAB CODE
ANALYSIS	AS RECEIVED	QUANTITATION	
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.022 mg/l	0.010	177201400P
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/14/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for zinc was performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
332 05667 30.00 075100

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Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
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LLI Sample No. WW 2063221  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1047  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Grab Water Sample  
Nease Chemical Superfund Site

ARSTR SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000P
Vinyl Chloride	98. ug/l	10.	349200000P
Chloroethane	< 10. ug/l	10.	349400000P
Acrolein	< 100. ug/l	100.	349500000P
Acrylonitrile	< 100. ug/l	100.	349600000P
Methylene Chloride	< 5. ug/l	5.	349700000P
Trichlorofluoromethane	< 5. ug/l	5.	126400000P
1,1-Dichloroethene	9. ug/l	5.	350000000P
1,1-Dichloroethane	< 5. ug/l	5.	350100000P
1,2-Dichloroethene (total)	2,600. ug/l	5.	350200000P
Chloroform	50. ug/l	5.	350300000P
1,2-Dichloroethane	240. ug/l	5.	350400000P
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000P
Carbon Tetrachloride	12. ug/l	5.	350600000P
Bromodichloromethane	< 5. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	440. ug/l	5.	352300000P
1,2-Dichloropropane	< 5. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	560. ug/l	5.	351100000P
Dibromochloromethane	< 5. ug/l	5.	351200000P
1,1,2-Trichloroethane	15. ug/l	5.	351300000P
Benzene	730. ug/l	5.	351500000P
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000P
Bromoform	7. ug/l	5.	351800000P
Tetrachloroethene	1,400. ug/l	5.	352200000P
Toluene	160. ug/l	5.	352400000P
Chlorobenzene	130. ug/l	5.	352500000P
Ethylbenzene	28. ug/l	5.	352600000P
Xylene (total)	11. ug/l	5.	352900000P

The GC/MS volatile sample was preserved with 1 + 1 HCl to pH < 2. Low recovery of acid labile compounds, such as 2-chloroethyl vinyl ether, is likely to occur.

The analysis for GC/MS volatiles was performed by KAH on 12/10/93.  
The method used was EPA SW846 Method 8240A.

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Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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SP-1 Influent to Air Stripper Grab Water Sample  
Nease Chemical Superfund Site

ARSTR SDG#  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

LLI Sample No. WW 2063221  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1047  
P.O. 933-6158  
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LIMIT OF  
QUANTITATION LAB CODE

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Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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LLI Sample No. WW 2063222  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1047  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	143. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by BB on 12/15/93. The method used was EPA 600, Method 270.2.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.129 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.043 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	4.43 mg/l	0.025	175401400P*
Magnesium	22.3 mg/l	0.025	175701400P*
Manganese	1.11 mg/l	0.0025	175801400P*
Nickel	0.013 mg/l	0.013	176101400P*
Potassium	3.50 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	30.0 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.015 mg/l	0.010	177201400P

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
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LLI Sample No. WW 2063222  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1047  
P.O. 933-6158  
Rel.

SP-1 Influent to Air Stripper Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

### ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for zinc was performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations.



\* 221\*  
9 13



# Lancaster Laboratories

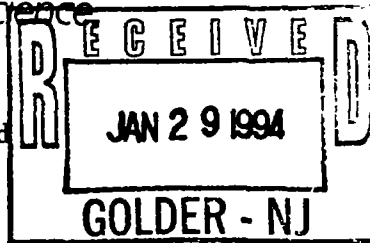
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14:40:17 402840 REP

ASR000 D 1 14

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



LLI Sample No. WW 2063223

Date Reported 1/28/94

Date Submitted 12/ 9/93

Discard Date 2/ 5/94

Collected 12/ 8/93 by JC

Time Collected 1109

P.O. 933-6158

Rel.

SP-2 Influent to Bag Filter 2 Grab Water Sample  
Nease Chemical Superfund Site

## BFILT SDG#

## ANALYSIS

## RESULT AS RECEIVED

## LIMIT OF QUANTITATION

## LAB CODE

Calcium	136. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Purgeables (SW846/8240A)	attached		150827000P*
Aluminum	1.14 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.043 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	4.71 mg/l	0.025	175401400P*
Magnesium	22.1 mg/l	0.025	175701400P*
Manganese	1.02 mg/l	0.0025	175801400P*
Nickel	< 0.013 mg/l	0.013	176101400P*
Potassium	3.47 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	29.2 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.0050 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063223  
Date Reported 1/28/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 5/94  
Collected 12/ 8/93 by JC  
Time Collected 1109  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Grab Water Sample  
Nease Chemical Superfund Site

BFILT SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The analysis for total cyanide was performed by SAH on 12/14/93.  
The method used was USEPA CLP Statement, March 1990.

The analyses for antimony, barium, beryllium, cobalt, iron, manganese,  
nickel, silver, vanadium, and zinc were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed  
by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed  
by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 073700

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 90



14:40:24 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-2 Influent to Bag Filter 2 Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063223  
Date Reported 1/28/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 5/94  
Collected 12/ 8/93 by JC  
Time Collected 1109  
P.O. 933-6158  
Rel.

BFILT SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 50. ug/l	50.	125800000P
Bromomethane	< 50. ug/l	50.	125700000P
Vinyl Chloride	< 50. ug/l	50.	349200000P
Chloroethane	< 50. ug/l	50.	349400000P
Acrolein	< 500. ug/l	500.	349500000P
Acrylonitrile	< 500. ug/l	500.	349600000P
Methylene Chloride	< 25. ug/l	25.	349700000P
Trichlorofluoromethane	< 25. ug/l	25.	126400000P
1,1-Dichloroethene	< 25. ug/l	25.	350000000P
1,1-Dichloroethane	< 25. ug/l	25.	350100000P
1,2-Dichloroethene (total)	640. ug/l	25.	350200000P
Chloroform	< 25. ug/l	25.	350300000P
1,2-Dichloroethane	74. ug/l	25.	350400000P
1,1,1-Trichloroethane	< 25. ug/l	25.	350500000P
Carbon Tetrachloride	< 25. ug/l	25.	350600000P
Bromodichloromethane	< 25. ug/l	25.	350800000P
1,1,1,2-Tetrachloroethane	240. ug/l	25.	352300000P
1,2-Dichloropropane	< 25. ug/l	25.	350900000P
trans-1,3-Dichloropropene	< 25. ug/l	25.	351000000P
Trichloroethene	90. ug/l	25.	351100000P
Dibromochloromethane	< 25. ug/l	25.	351200000P
1,1,2-Trichloroethane	< 25. ug/l	25.	351300000P
Benzene	27. ug/l	25.	351500000P
cis-1,3-Dichloropropene	< 25. ug/l	25.	351600000P
2-Chloroethyl Vinyl Ether	< 50. ug/l	50.	364500000P
Bromoform	< 25. ug/l	25.	351800000P
Tetrachloroethene	180. ug/l	25.	352200000P
Toluene	26. ug/l	25.	352400000P
Chlorobenzene	29. ug/l	25.	352500000P
Ethylbenzene	< 25. ug/l	25.	352600000P
Xylene (total)	< 25. ug/l	25.	352900000P

The GC/MS volatile sample was preserved with 1 + 1 HCl to pH < 2. Low recovery of acid labile compounds, such as 2-chloroethyl vinyl ether, is likely to occur.

The analysis for GC/MS volatiles was performed by TSS on 12/13/93.  
The method used was EPA SW846 Method 8240A.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations



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SP-2 Influent to Bag Filter 2 Grab Water Sample  
Nease Chemical Superfund Site

BFILT SDG#  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

LLI Sample No. WW 2063223  
Date Reported 1/28/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 5/94  
Collected 12/ 8/93 by JC  
Time Collected 1109  
P.O. 933-6158  
Rel.

LIMIT OF  
QUANTITATION LAB CODE

The quantitation limits for the GC/MS volatile compounds were raised because sample dilution was necessary to bring target compounds into the calibration range of the system.

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations



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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063224  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1109  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	136. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.072 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.040 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	3.38 mg/l	0.025	175401400P*
Magnesium	21.6 mg/l	0.025	175701400P*
Manganese	0.965 mg/l	0.0025	175801400P*
Nickel	< 0.013 mg/l	0.013	176101400P*
Potassium	3.38 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	28.6 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.0050 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations.



\* 2216  
9 13 94



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15:37:43 402840 REP  
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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063224  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1109  
P.O. 933-6158  
Rel.

SP-2 Influent to Bag Filter 2 Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

## ANALYSIS

## RESULT AS RECEIVED

## LIMIT OF QUANTITATION LAB CODE

The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations




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ASR000 D 1 14

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-3 Influent to Liquid GAC 1 Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063225  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1111  
P.O. 933-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	138. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Aluminum	1.03 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.042 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	4.52 mg/l	0.025	175401400P*
Magnesium	21.7 mg/l	0.025	175701400P*
Manganese	1.00 mg/l	0.0025	175801400P*
Nickel	< 0.013 mg/l	0.013	176101400P*
Potassium	3.44 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	28.8 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.0050 mg/l	0.0050	177201400P*
Total Cyanide	< 5.0 ug/l	5.0	334304000P*

The analysis for total cyanide was performed by SAH on 12/14/93.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 9



15:37:35 402840 REP  
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05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063225  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1111  
P.O. 933-6158  
Rel.

SP-3 Influent to Liquid GAC 1 Grab Water Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
The method used was USEPA CLP Statement, March 1990.			

The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

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Client Services at (717) 656-2301  
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Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:37:25 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WV 2063226  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1111  
P.O. 933-6158  
Rel.

SP-3 Influent to Liquid GAC 1 Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	140. mg/l The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.	0.20	025001400P*
Mercury	< 0.00020 mg/l The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.	0.00020025902500P*	
Arsenic (furnace method)	< 0.010 mg/l The analysis for arsenic was performed by JAS on 12/14/93. The method used was EPA SW-846, Method 7060.	0.010	104503000P*
Lead (furnace method)	< 0.0030 mg/l The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.	0.0030	105503000P*
Selenium (furnace method)	< 0.0050 mg/l The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.	0.0050	106403000P*
Thallium (furnace method)	< 0.010 mg/l The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.	0.010	107303000P*
Aluminum	0.060 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.043 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	3.28 mg/l	0.025	175401400P*
Magnesium	21.5 mg/l	0.025	175701400P*
Manganese	0.985 mg/l	0.0025	175801400P*
Nickel	< 0.013 mg/l	0.013	176101400P*
Potassium	3.45 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	28.6 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.0050 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry





15:37:25 402840 REP  
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305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063226  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1111  
P.O. 933-6158  
Rel.

SP-3 Influent to Liquid GAC 1 Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
----------	-----------------------	--------------------------	----------

The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, vanadium, and zinc were performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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15:36:45 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063227  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
Nease Chemical Superfund Site

4-GAC SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	127. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BB on 12/13/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by RDG on 12/11/93. The method used was EPA SW-846, Method 7841.			
Acid Extractables SW846/8270A	attached		142414000P*
Base Neutrals (SW846/8270A)	attached		142540000P*
Base Neut., cont (SW846/8270A)	attached		142600000P*
P.P. Pesticides (SW846/8080)	attached		159924000P*
Aluminum	0.118 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.036 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	0.0141 mg/l	0.0050	175301400P*
Iron	1.65 mg/l	0.025	175401400P*
Magnesium	22.1 mg/l	0.025	175701400P*
Manganese	1.06 mg/l	0.0025	175801400P*
Nickel	0.017 mg/l	0.013	176101400P*
Potassium	3.45 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	29.4 mg/l	0.10	176701400P*

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Lancaster, PA 17601-5994  
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SP-4 Influent to Liquid GAC 2 Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063227  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
Rel.

4-GAC SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.010 mg/l	0.010	177201400P
Total Cyanide	< 5.0 ug/l	5.0	334304000P*
The analysis for total cyanide was performed by SAH on 12/14/93. The method used was USEPA CLP Statement, March 1990.			
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900102000P
Diphenyl Sulfone	130. ug/l	80.	900202000P
Benzoic Acid	720. ug/l	400.	900300000P

The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for GC/MS semivolatiles was performed by RAS on 12/24/93. The method used was SW-846, Method 8270A.

The analysis for zinc was performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
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LLI Sample No. WW 2063227  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
Nease Chemical Superfund Site

4-GAC SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	< 10. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	< 10. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063227  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
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4-GAC SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	< 10. ug/l	10.	393800000P
1,2-dichlorobenzene	540. ug/l	80.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	< 10. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063227  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
Nease Chemical Superfund Site

4-GAC SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063227  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Grab Water Sample  
Nease Chemical Superfund Site

4-GAC SDG#	RESULT		LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED		QUANTITATION	
Alpha BHC	< 0.01	ug/l	0.01	160000000P
Beta BHC	< 0.01	ug/l	0.01	160100000P
Gamma BHC - Lindane	< 0.02	ug/l	0.02	160200000P
Delta BHC	< 0.01	ug/l	0.01	160300000P
Heptachlor	< 0.01	ug/l	0.01	160400000P
Aldrin	< 0.01	ug/l	0.01	160500000P
Heptachlor Epoxide	< 0.01	ug/l	0.01	160600000P
DDE	< 0.02	ug/l	0.02	160700000P
DDD	< 0.01	ug/l	0.01	160800000P
DDT	< 0.01	ug/l	0.01	160900000P
Dieldrin	< 0.03	ug/l	0.03	161000000P
Endrin	< 0.01	ug/l	0.01	161100000P
Methoxychlor	0.18	ug/l	0.05	186000000P
Chlordane	< 0.3	ug/l	0.3	161200000P
Toxaphene	< 4.	ug/l	4.	161300000P
Endosulfan I	< 0.01	ug/l	0.01	161600000P
Endosulfan II	< 0.01	ug/l	0.01	161500000P
Endosulfan Sulfate	< 0.03	ug/l	0.03	161700000P
Endrin Aldehyde	< 0.1	ug/l	0.1	161800000P

The analysis for Pesticides was performed by NES on 01/11/94.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September, 1986.

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Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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LLI Sample No. WW 2063228  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
Rel.

SP-4 Influent to Liquid GAC 2 Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	134. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BB on 12/13/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by MST on 12/11/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.051 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.035 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	0.0151 mg/l	0.0050	175301400P*
Iron	1.37 mg/l	0.025	175401400P*
Magnesium	22.2 mg/l	0.025	175701400P*
Manganese	1.03 mg/l	0.0025	175801400P*
Nickel	0.017 mg/l	0.013	176101400P*
Potassium	3.49 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	29.5 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.010 mg/l	0.010	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
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Lancaster, PA 17601-5994  
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Instrumental Water Chemistry

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LLI Sample No. WW 2063228  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1128  
P.O. 933-6158  
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SP-4 Influent to Liquid GAC 2 Filtered Grab Water  
Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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The analyses for antimony, barium, beryllium, cobalt, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

The analyses for cadmium, copper, and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for zinc was performed by NCH on 12/14/93.  
The method used was EPA SW-846, Method 6010.

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Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry





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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EF SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Total Suspended Solids	< 7. mg/l	7.	020601400P
The analysis for total suspended solids was performed by DSS on 12/13/93. The method used was EPA 160.2.			
Total Dissolved Solids	670. mg/l	30.	021201500P
The analysis for total dissolved solids was performed by CLM on 12/15/93. The method used was EPA 160.1.			
Ammonia Nitrogen	< 1. mg/l	1.	022102800P
The analysis for ammonia nitrogen was performed by TMG on 12/22/93. The method used was EPA 350.2.			
Biochemical Oxygen Demand	5. mg/l	4.	023503300P
The analysis for biochemical oxygen demand was performed by JS on 12/09/93. The method used was EPA 405.1.			
Calcium	126. mg/l	0.20	025001400P
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Total Organic Carbon	28. mg/l	1.	027302500P
The Total Organic Carbon (TOC) result reported above was determined by measuring total carbon by a persulfate digestion/infrared detection method on an acidified sample which has been purged of inorganic carbon using nitrogen. It represents "non-purgeable TOC". The analysis for TOC was performed by DE on 12/14/93. The method used was EPA 600, Method 415.1.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P
The analysis for arsenic was performed by BB on 12/13/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P
The analysis for thallium was performed by MST on 12/11/93. The method used was EPA SW-846, Method 7841.			

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LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EF SDG# ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Acid Extractables SW846/8270A	attached		142414000P
Base Neutrals (SW846/8270A)	attached		142540000P
Base Neut., cont (SW846/8270A)	attached		142600000P
Purgeables (SW846/8240A)	attached		150827000P
P.P. Pesticides (SW846/8080)	attached		159924000P
Aluminum	0.066 mg/l	0.050	174301400P
Antimony	< 0.050 mg/l	0.050	174401400P
Barium	0.035 mg/l	0.025	174601400P
Beryllium	< 0.0025 mg/l	0.0025	174701400P
Cadmium	< 0.0025 mg/l	0.0025	174901400P
Chromium	< 0.013 mg/l	0.013	175101400P
Cobalt	< 0.013 mg/l	0.013	175201400P
Copper	0.0206 mg/l	0.0050	175301400P
Iron	0.259 mg/l	0.025	175401400P
Magnesium	22.4 mg/l	0.025	175701400P
Manganese	1.23 mg/l	0.0025	175801400P
Nickel	0.034 mg/l	0.013	176101400P
Potassium	3.43 mg/l	0.13	176201400P
Silver	< 0.0050 mg/l	0.0050	176601400P
Sodium	29.8 mg/l	0.10	176701400P
Vanadium	< 0.0025 mg/l	0.0025	177101400P
Zinc	0.045 mg/l	0.010	177201400P
Total Cyanide	< 5.0 ug/l	5.0	334304000P
The analysis for total cyanide was performed by SAH on 12/14/93.			
The method used was USEPA CLP Statement, March 1990.			
Chemical Oxygen Demand	70. mg/l	50.	400102900P
The analysis for chemical oxygen demand was performed by AMP on 12/14/93.			
The method used was EPA 410.4.			
3,4-Dichloronitrobenzene	< 50. ug/l	50.	900102000P
Diphenyl Sulfone	11. ug/l	10.	900202000P
Benzoic Acid	480. ug/l	200.	900300000P

The analyses for antimony, barium, beryllium, cobalt, copper, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93. The method used was EPA 600, Method 200.7.

The analyses for cadmium and potassium were performed by DJP on 12/16/93.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations





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16:05:56 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP5EF SDG#  
ANALYSIS

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

The method used was EPA 600, Method 200.7.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA 600, Method 200.7.

The analysis for GC/MS semivolatiles was performed by RAS on 12/24/93. The method used was SW-846, Method 8270A.

The analysis for zinc was performed by NCH on 12/14/93.  
The method used was EPA 600, Method 200.7.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 30.00 170100

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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Instrumental Water Chemistry

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Mount Laurel, NJ 08054-1232

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WV 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP5EF SDG#	RESULT	LIMIT OF	LAB CODE
Acid Extractables SW846/8270A	AS RECEIVED	QUANTITATION	
2-chlorophenol	< 10. ug/l	10.	392400000P
phenol	< 10. ug/l	10.	392500000P
2-nitrophenol	< 10. ug/l	10.	392600000P
2,4-dimethylphenol	< 10. ug/l	10.	392700000P
2,4-dichlorophenol	< 10. ug/l	10.	392800000P
4-chloro-3-methylphenol	< 10. ug/l	10.	392900000P
2,4,6-trichlorophenol	< 10. ug/l	10.	393000000P
2,4-dinitrophenol	< 25. ug/l	25.	393100000P
4-nitrophenol	< 25. ug/l	25.	393200000P
4,6-dinitro-2-methylphenol	< 25. ug/l	25.	393300000P
pentachlorophenol	< 25. ug/l	25.	393400000P

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Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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\* 2216  
9 13 5



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16:06:16 402840 REP

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EF SDG#	RESULT	LIMIT OF	LAB CODE
Base Neutrals (SW846/8270A)	AS RECEIVED	QUANTITATION	
N-nitrosodimethylamine	< 10. ug/l	10.	393500000P
bis (2-chloroethyl) ether	< 10. ug/l	10.	393600000P
1,3-dichlorobenzene	< 10. ug/l	10.	393700000P
1,4-dichlorobenzene	< 10. ug/l	10.	393800000P
1,2-dichlorobenzene	21. ug/l	10.	393900000P
bis (2-chloroisopropyl) ether	< 10. ug/l	10.	394000000P
hexachloroethane	< 10. ug/l	10.	394100000P
N-nitrosodi-n-propylamine	< 10. ug/l	10.	394200000P
nitrobenzene	< 10. ug/l	10.	394300000P
isophorone	< 10. ug/l	10.	394400000P
bis (2-chloroethoxy) methane	< 10. ug/l	10.	394500000P
1,2,4-trichlorobenzene	< 10. ug/l	10.	394600000P
naphthalene	< 10. ug/l	10.	394700000P
hexachlorobutadiene	< 10. ug/l	10.	394800000P
hexachlorocyclopentadiene	< 10. ug/l	10.	394900000P
2-chloronaphthalene	< 10. ug/l	10.	395000000P
acenaphthylene	< 10. ug/l	10.	395100000P
dimethyl phthalate	< 10. ug/l	10.	395200000P
2,6-dinitrotoluene	< 10. ug/l	10.	395300000P
acenaphthene	< 10. ug/l	10.	395400000P
2,4-dinitrotoluene	< 10. ug/l	10.	395500000P
fluorene	< 10. ug/l	10.	395600000P
4-chlorophenyl phenyl ether	< 10. ug/l	10.	395700000P
diethyl phthalate	< 10. ug/l	10.	395800000P
1,2-diphenylhydrazine	< 10. ug/l	10.	395900000P
N-nitrosodiphenylamine	< 10. ug/l	10.	396000000P
4-bromophenyl phenyl ether	< 10. ug/l	10.	396100000P
hexachlorobenzene	< 10. ug/l	10.	396200000P
phenanthrene	< 10. ug/l	10.	396300000P

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Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

See reverse side for explanation of symbols and abbreviations



\* 221  
9-13



16:06:29 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EF SDG#	RESULT	LIMIT OF	LAB CODE
Base Neut., cont (SW846/8270A)	AS RECEIVED	QUANTITATION	
anthracene	< 10. ug/l	10.	396400000P
di-n-butyl phthalate	< 10. ug/l	10.	396500000P
fluoranthene	< 10. ug/l	10.	396600000P
pyrene	< 10. ug/l	10.	396700000P
benzidine	< 100. ug/l	100.	396800000P
butyl benzyl phthalate	< 10. ug/l	10.	396900000P
benzo (a) anthracene	< 10. ug/l	10.	397000000P
chrysene	< 10. ug/l	10.	397100000P
3,3'-dichlorobenzidine	< 20. ug/l	20.	397200000P
bis (2-ethylhexyl) phthalate	< 10. ug/l	10.	397300000P
di-n-octyl phthalate	< 10. ug/l	10.	397400000P
benzo (b) fluoranthene	< 10. ug/l	10.	397500000P
benzo (K) fluoranthene	< 10. ug/l	10.	397600000P
benzo (a) pyrene	< 10. ug/l	10.	397700000P
indeno (1,2,3-cd) pyrene	< 10. ug/l	10.	397800000P
dibenz (a,h) anthracene	< 10. ug/l	10.	397900000P
benzo (ghi) perylene	< 10. ug/l	10.	398000000P

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Lancaster, PA 17601-5994  
717-656-2301

Jon S. Kauffman, Ph.D.  
Group Leader, GC/MS

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Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EF SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000P
Vinyl Chloride	< 10. ug/l	10.	349200000P
Chloroethane	< 10. ug/l	10.	349400000P
Acrolein	< 100. ug/l	100.	349500000P
Acrylonitrile	< 100. ug/l	100.	349600000P
Methylene Chloride	< 5. ug/l	5.	349700000P
Trichlorofluoromethane	< 5. ug/l	5.	126400000P
1,1-Dichloroethene	< 5. ug/l	5.	350000000P
1,1-Dichloroethane	< 5. ug/l	5.	350100000P
1,2-Dichloroethene (total)	47. ug/l	5.	350200000P
Chloroform	< 5. ug/l	5.	350300000P
1,2-Dichloroethane	110. ug/l	5.	350400000P
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000P
Carbon Tetrachloride	< 5. ug/l	5.	350600000P
Bromodichloromethane	< 5. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	62. ug/l	5.	352300000P
1,2-Dichloropropane	< 5. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	5. ug/l	5.	351100000P
Dibromochloromethane	< 5. ug/l	5.	351200000P
1,1,2-Trichloroethane	< 5. ug/l	5.	351300000P
Benzene	18. ug/l	5.	351500000P
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000P
Bromoform	< 5. ug/l	5.	351800000P
Tetrachloroethene	< 5. ug/l	5.	352200000P
Toluene	< 5. ug/l	5.	352400000P
Chlorobenzene	< 5. ug/l	5.	352500000P
Ethylbenzene	< 5. ug/l	5.	352600000P
Xylene (total)	< 5. ug/l	5.	352900000P

The GC/MS volatile sample was preserved with 1 + 1 HCl to pH < 2. Low recovery of acid labile compounds, such as 2-chloroethyl vinyl ether, is likely to occur.

The analysis for GC/MS volatiles was performed by TSS on 12/13/93.  
The method used was EPA SW846 Method 8240A.

Questions? Contact Environmental  
Client Services at (717) 656-2301

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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations





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05667 0

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Mount Laurel, NJ 08054-1232

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EP SDG#  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

LIMIT OF  
QUANTITATION LAB CODE

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Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc  
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Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

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05667 0

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LLI Sample No. WW 2063229  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Grab Water Sample  
Nease Chemical Superfund Site

SP5EF SDG#	RESULT	LIMIT OF	LAB CODE
P.P. Pesticides (SW846/8080)	AS RECEIVED	QUANTITATION	
Alpha BHC	< 0.01 ug/l	0.01	160000000P
Beta BHC	< 0.01 ug/l	0.01	160100000P
Gamma BHC - Lindane	< 0.01 ug/l	0.01	160200000P
Delta BHC	< 0.01 ug/l	0.01	160300000P
Heptachlor	< 0.01 ug/l	0.01	160400000P
Aldrin	< 0.01 ug/l	0.01	160500000P
Heptachlor Epoxide	< 0.01 ug/l	0.01	160600000P
DDE	< 0.01 ug/l	0.01	160700000P
DDD	< 0.01 ug/l	0.01	160800000P
DDT	< 0.01 ug/l	0.01	160900000P
Dieldrin	< 0.01 ug/l	0.01	161000000P
Endrin	< 0.01 ug/l	0.01	161100000P
Methoxychlor	< 0.05 ug/l	0.05	186000000P
Chlordane	< 0.3 ug/l	0.3	161200000P
Toxaphene	< 4. ug/l	4.	161300000P
Endosulfan I	< 0.01 ug/l	0.01	161600000P
Endosulfan II	< 0.01 ug/l	0.01	161500000P
Endosulfan Sulfate	< 0.03 ug/l	0.03	161700000P
Endrin Aldehyde	< 0.1 ug/l	0.1	161800000P

The analysis for Pesticides/PCBs was performed by DML on 12/16/93.  
The method used was Test Methods for Evaluating Solid Waste, SW-846,  
Method 8080, September 1986.

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Questions? Contact Environmental  
Client Services at (717) 656-2301

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Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Jenifer E. Hess, B.S.  
Group Leader Pesticides/PCBs

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15:36:29 402840 REP

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SP-5 Effluent Filtered Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. WW 2063230

Date Reported 1/25/94

Date Submitted 12/ 9/93

Discard Date 2/ 2/94

Collected 12/ 8/93 by JC

Time Collected 1145

P.O. 933-6158

Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	132. mg/l	0.20	025001400P*
The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.			
Mercury	< 0.00020 mg/l	0.00020025902500P*	
The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.			
Arsenic (furnace method)	< 0.010 mg/l	0.010	104503000P*
The analysis for arsenic was performed by BB on 12/13/93. The method used was EPA SW-846, Method 7060.			
Lead (furnace method)	< 0.0030 mg/l	0.0030	105503000P*
The analysis for lead was performed by MST on 12/10/93. The method used was EPA SW-846, Method 7421.			
Selenium (furnace method)	< 0.0050 mg/l	0.0050	106403000P*
The analysis for selenium was performed by EAT on 12/14/93. The method used was EPA SW-846, Method 7740.			
Thallium (furnace method)	< 0.010 mg/l	0.010	107303000P*
The analysis for thallium was performed by MST on 12/11/93. The method used was EPA SW-846, Method 7841.			
Aluminum	0.070 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	0.036 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	0.0203 mg/l	0.0050	175301400P*
Iron	0.080 mg/l	0.025	175401400P*
Magnesium	21.7 mg/l	0.025	175701400P*
Manganese	1.25 mg/l	0.0025	175801400P*
Nickel	0.035 mg/l	0.013	176101400P*
Potassium	3.32 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	29.1 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	0.040 mg/l	0.010	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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\* 221E  
9 13 9



15:36:29 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063230  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 8/93 by JC  
Time Collected 1145  
P.O. 933-6158  
Rel.

SP-5 Effluent Filtered Grab Water Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
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The analyses for antimony, barium, beryllium, cobalt, copper, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

The analyses for cadmium and potassium were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

The analysis for zinc was performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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**Vapor Phase VOC Results**



## Lancaster Laboratories

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02:44:42 401974  
DIS000 D 1 2  
05667 0

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Mount Laurel, NJ 08054-1232

LLI Sample No. AQ 2059678  
Date Reported 12/ 9/93  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1345  
P.O. 933-6158  
Rel.

A-1 Influent to Vapor GAC1 Summa Canister 0074

### ANALYSIS

T0-14

RESULT  
AS RECEIVED

See Attached

LIMIT OF  
QUANTITATION LAB CODE  
900145000P

The canister was pressurized to 15 psi(g) with humid air prior to determination of the the volatile organic compounds. Because of high concentrations of VOCs, a secondary dilution was made using a second Summa canister (0063) by mixing 50 CC of the initial dilution with 20000 CC of humid air.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Jeffery Hendel

Questions? Contact Environmental  
Client Services at (717) 656-2301  
021 05667 0.00 045000

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Lancaster, PA 17601-5994  
717-656-2301

Dennis Urban, M.S.  
Chemist IV

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\* 2216  
9 13 9

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
BLANK SUMMARY

Instrument ID:HP 2                      Sample No.:VBLK                      Lab Sample ID:METH BLANK  
Injection Volume: 250.0(cc)    Date Analyzed:12/07/93                      Time Analyzed:13:09  
Lab File ID:C:\HPCHEM\1\DATA\DEC07\0701006.D

THIS BLANK APPLIES TO THE FOLLOWING SAMPLES:

#	SAMPLE NO.	LAB SAMP.ID	LAB FILE ID	CANISTER ID	DATE	TIME
1	A2 EFGAC2	2059679	DEC07\0901008.D	SUMMA0061	12/07/93	15:24
2	A-2 DUP	2059679	DEC07\1001009.D	SUMMA0061	12/07/93	16:10
3	A1 INFGAC1	2059678	DEC07\1101010.D	SUMMA0074	12/07/93	16:57
4	A1 DUP	2059678	DEC07\1201011.D	SUMMA0074	12/07/93	17:45
5	LCS #1	LCS	DEC07\1401013.D		12/07/93	19:31

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
LABORATORY CONTROL SAMPLE DATA SHEET

Lab Sample ID:LCS Instrument ID:HP 2  
Sample No.:LCS #1 Date Analyzed:12/07/93 Time Analyzed:19:31  
Lab File ID:C:\HPCHEM\1\DATA\DEC07\1401013.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)		% RECOVERY	Q
		SPIKED	REPORTED		
75-01-4	Vinyl Chloride	10.25	8.63	84	
71-55-6	1,1,1-Trichloroethane	10.90	11.18	102	
71-43-2	Benzene	10.65	10.56	99	
79-01-6	Trichloroethene	10.90	11.26	103	
100-41-4	Ethyl Benzene	10.90	9.99	92	
106-46-7	1,4-Dichlorobenzene	10.60	9.22	87	

Recovery QC Limits: 75-125%

LCS Recovery: 0 outside limits out of 6 total.

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.:VBLK Date Collected: / / Date Received: / /  
Lab Sample ID:METH BLANK Date Analyzed: 12/07/93 Time Analyzed:13:09  
Canister ID: Pressure Rec'd: 0.0 psia Final Pressure: 0.0 psia  
Injection Volume: 250.0 cc Nominal Volume: 250 cc Dilution Factor: 1.0  
Instrument ID:HP 2 Lab File ID:C:\HPCHEM\1\DATA\DEC07\0701006.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluorometh	1	U
76-14-2	Freon 114 (1,2-Dichlorotetraflu	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Freon 11 (Trichlorofluorometha	1	U
75-35-4	1,1-Dichloroethene	1	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2	1	U
107-05-1	3-Chloropropene	1	U
75-09-2	Dichloromethane (Methylene chl	1	U
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethyl Benzene	1	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbe	1	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	1	U
100-42-5	Styrene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
622-96-8	4-Ethyltoluene	1	U
108-67-8	1,3,5-Trimethylbenzene (Mesity	1	U
95-63-6	1,2,4-Trimethylbenzene (Pseudo	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
100-44-7	Benzyl chloride	1	U
95-50-1	1,2-Dichlorobenzene	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
87-68-3	Hexachlorobutadiene	1	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank. D = analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A1 INFL. GAC1      Date Collected: 12/01/93      Date Received: 12/02/93  
Lab Sample ID: 2059678      Date Analyzed: 12/07/93      Time Analyzed: 16:57  
Canister ID: SUMMA0074      Pressure Rec'd: 14.7 psia      Final Pressure: 31.1 psia  
Injection Volume: 50.0 cc      Nominal Volume: 250 cc      Dilution Factor: 4200.  
Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC07\1101010.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluoromethane)	4200	U
76-14-2	Freon 114 (1,2-Dichlorotetrafluoroethane)	4200	U
74-87-3	Chloromethane	4200	U
75-01-4	Vinyl Chloride	4200	U
74-83-9	Bromomethane	4200	U
75-00-3	Chloroethane	4200	U
75-69-4	Freon 11 (Trichlorofluoromethane)	4200	U
75-35-4	1,1-Dichloroethene	4200	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	4200	U
107-05-1	3-Chloropropene	4200	U
75-09-2	Dichloromethane (Methylene chloride)	4200	U
75-34-3	1,1-Dichloroethane	4200	U
156-59-2	cis-1,2-Dichloroethene	31000	D
67-66-3	Chloroform	4200	U
71-55-6	1,1,1-Trichloroethane	4200	U
56-23-5	Carbon Tetrachloride	4200	U
107-06-2	1,2-Dichloroethane	19000	D
71-43-2	Benzene	110000	D
79-01-6	Trichloroethene	29000	D
78-87-5	1,2-Dichloropropane	4200	U
10061-01-5	cis-1,3-Dichloropropene	4200	U
108-88-3	Toluene	18000	D
10061-02-6	trans-1,3-Dichloropropene	4200	U
79-00-5	1,1,2-Trichloroethane	4200	U
127-18-4	Tetrachloroethene	42000	D
106-93-4	1,2-Dibromoethane	4200	U
108-90-7	Chlorobenzene	4500	D
100-41-4	Ethyl Benzene	4200	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbenzene)	4200	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	4200	U
100-42-5	Styrene	4200	U
79-34-5	1,1,2,2-Tetrachloroethane	8100	D
622-96-8	4-Ethyltoluene	4200	U
108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	4200	U
95-63-6	1,2,4-Trimethylbenzene (Pseudocumene)	4200	U
541-73-1	1,3-Dichlorobenzene	4200	U
106-46-7	1,4-Dichlorobenzene	4200	U
100-44-7	Benzyl chloride	4200	U
95-50-1	1,2-Dichlorobenzene	40000	D
120-82-1	1,2,4-Trichlorobenzene	4200	U
87-68-3	Hexachlorobutadiene	4200	U

U = Compound was undetected at the specified limit of quantitation.  
B = Compound was found in method blank.      D = analysis of diluted sample.





## Lancaster Laboratories

*Where quality is a science.*

02:44:43 401974  
DIS000 D 1 2  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. AQ 2059679  
Date Reported 12/ 9/93  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93  
Collected 12/ 1/93 by JC  
Time Collected 1345  
P.O. 933-6158  
Rel.

A-2 Effluent to Vapor GAC2 Summa Canister 0061

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
TO-14	See Attached		900145000P
The Summa canister was pressurized to 10 psi(g) with humid air prior to the determination of the volatile organic compounds in the air.			

1 COPY TO Golder Associates Incorporated ATTN: Mr. Jeffery Hendel

Questions? Contact Environmental  
Client Services at (717) 656-2301  
021 05667 0.00 045000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Dennis Urban, M.S.  
Chemist IV

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 9

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A2 EFFL. GAC2      Date Collected: 12/01/93      Date Received: 12/02/93  
Lab Sample ID: 2059679      Date Analyzed: 12/07/93      Time Analyzed: 15:24  
Canister ID: SUMMA0061      Pressure Rec'd: 14.7 psia      Final Pressure: 24.7 psia  
Injection Volume: 250.0 cc      Nominal Volume: 250 cc      Dilution Factor: 1.7  
Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC07\0901008.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluorometh	2	U
76-14-2	Freon 114 (1,2-Dichlorotetraflu	2	U
74-87-3	Chloromethane	2	U
75-01-4	Vinyl Chloride	2	U
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	2	U
75-69-4	Freon 11 (Trichlorofluorometha	2	U
75-35-4	1,1-Dichloroethene	2	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2	2	U
107-05-1	3-Chloropropene	2	U
75-09-2	Dichloromethane (Methylene chl	2	U
75-34-3	1,1-Dichloroethane	2	U
156-59-2	cis-1,2-Dichloroethene	2	U
67-66-3	Chloroform	2	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
107-06-2	1,2-Dichloroethane	2	U
71-43-2	Benzene	2	D
79-01-6	Trichloroethene	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
108-88-3	Toluene	4	D
10061-02-6	trans-1,3-Dichloropropene	2	U
79-00-5	1,1,2-Trichloroethane	2	U
127-18-4	Tetrachloroethene	2	U
106-93-4	1,2-Dibromoethane	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethyl Benzene	2	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbe	2	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	2	U
100-42-5	Styrene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
622-96-8	4-Ethyltoluene	2	U
108-67-8	1,3,5-Trimethylbenzene (Mesity	2	U
95-63-6	1,2,4-Trimethylbenzene (Pseudo	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-44-7	Benzyl chloride	2	U
95-50-1	1,2-Dichlorobenzene	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
87-68-3	Hexachlorobutadiene	2	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank.

D = analysis of diluted sample.



## Lancaster Laboratories

*Where quality is a science.*

08:08:13 402829  
DIS000 D 1 3  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. AQ 2063169  
Date Reported 12/15/93  
Date Submitted 12/ 9/93  
Discard Date 12/ 9/93  
Collected 12/ 8/93 by JC  
Time Collected 1210  
P.O. 933-6158  
Rel.

A-1 Influent to Vapor GAC 1 Summa Canister  
Nease Chemical Site

ANALYSIS  
T0-14

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE  
900145000P

See Attached

The sample was diluted (500X) in a second Summa Canister (0023) with humid air to bring high concentrations of some of the volatile organic compounds within the calibration range.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Jeffrey Hendel

Questions? Contact Environmental  
Client Services at (717) 656-2301  
021 05667 0.00 045000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Dennis Urban, M.S.  
Chemist IV

See reverse side for explanation of symbols and abbreviations



LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A-1 INFLUENT      Date Collected: 12/08/93      Date Received: 12/09/93  
 ab Sample ID: 2063169      Date Analyzed: 12/13/93      Time Analyzed: 16:32  
 anister ID: SUMMA0087      Pressure Rec'd: 14.7 psia      Final Pressure: 44.7 psia  
 Injection Volume: 25.0 cc      Nominal Volume: 250 cc      Dilution Factor: 30.4  
 Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC13\0601006.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluoromethane)	30	U
76-14-2	Freon 114 (1,2-Dichlorotetrafluoroethane)	30	U
74-87-3	Chloromethane	30	U
75-01-4	Vinyl Chloride	940	D
74-83-9	Bromomethane	30	U
75-00-3	Chloroethane	30	U
75-69-4	Freon 11 (Trichlorofluoromethane)	30	U
75-35-4	1,1-Dichloroethene	180	D
76-13-1	Freon 113 (1,1,2-Trichloro-1,2-difluoroethane)	30	U
107-05-1	3-Chloropropene	30	U
75-09-2	Dichloromethane (Methylene chloride)	31	B D
75-34-3	1,1-Dichloroethane	30	U
156-59-2	cis-1,2-Dichloroethene	11000	D
67-66-3	Chloroform	550	D
71-55-6	1,1,1-Trichloroethane	30	U
56-23-5	Carbon Tetrachloride	30	U
107-06-2	1,2-Dichloroethane	650	D
71-43-2	Benzene	1700	D
79-01-6	Trichloroethene	1700	D
78-87-5	1,2-Dichloropropane	30	U
10061-01-5	cis-1,3-Dichloropropene	30	U
108-88-3	Toluene	1800	D
10061-02-6	trans-1,3-Dichloropropene	30	U
79-00-5	1,1,2-Trichloroethane	52	D
127-18-4	Tetrachloroethene	3000	D
106-93-4	1,2-Dibromoethane	30	U
108-90-7	Chlorobenzene	1200	D
100-41-4	Ethyl Benzene	500	D
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbenzene)	44	D
95-47-6	o-Xylene (1,2-Dimethylbenzene)	30	U
100-42-5	Styrene	30	U
79-34-5	1,1,2,2-Tetrachloroethane	260	D
622-96-8	4-Ethyltoluene	30	U
108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	30	U
95-63-6	1,2,4-Trimethylbenzene (Pseudo-cumene)	30	U
541-73-1	1,3-Dichlorobenzene	30	U
106-46-7	1,4-Dichlorobenzene	160	D
100-44-7	Benzyl chloride	30	U
95-50-1	1,2-Dichlorobenzene	3900	D
120-82-1	1,2,4-Trichlorobenzene	30	U
87-68-3	Hexachlorobutadiene	30	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank.      D = analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
LABORATORY CONTROL SAMPLE DATA SHEET

Lab Sample ID:LCS

Instrument ID:HP 2

Sample No.:LCS #1

Date Analyzed:12/07/93

Time Analyzed:19:31

Lab File ID:C:\HPCHEM\1\DATA\DEC07\1401013.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)		% RECOVERY	Q
		SPIKED	REPORTED		
75-01-4	Vinyl Chloride	10.25	8.63	84	
71-55-6	1,1,1-Trichloroethane	10.90	11.18	102	
71-43-2	Benzene	10.65	10.56	99	
79-01-6	Trichloroethene	10.90	11.26	103	
100-41-4	Ethyl Benzene	10.90	9.99	92	
106-46-7	1,4-Dichlorobenzene	10.60	9.22	87	

%Recovery QC Limits: 75-125%

LCS Recovery: 0 outside limits out of \* total.

Comments:



## Lancaster Laboratories

*Where quality is a science.*

08:08:14 402829  
DIS000 D 1 3  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

A-2 Effluent from Vapor GAC 2 Summa Canister  
Nease Chemical Site

LLI Sample No. AQ 2063170  
Date Reported 12/15/93  
Date Submitted 12/ 9/93  
Discard Date 12/ 9/93  
Collected 12/ 8/93 by JC  
Time Collected 1210  
P.O. 933-6158  
Rel.

ANALYSIS  
T0-14

RESULT  
AS RECEIVED  
See Attached

LIMIT OF  
QUANTITATION LAB CODE  
900145000P

1 COPY TO Golder Associates Incorporated ATTN: Mr. Jeffrey Hendel

Questions? Contact Environmental  
Client Services at (717) 656-2301  
021 05667 0.00 045000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Dennis Urban, M.S.  
Chemist IV

See reverse side for explanation of symbols and abbreviations



LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A-2 EFFLUENT      Date Collected: 12/08/93      Date Received: 12/09/93  
Lab Sample ID: 2063170      Date Analyzed: 12/10/93      Time Analyzed: 12:01  
Canister ID: SUMMA0062      Pressure Rec'd: 14.7 psia      Final Pressure: 24.7 psia  
Injection Volume: 250.0 cc      Nominal Volume: 250 cc      Dilution Factor: 1.7  
Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC09\0901009.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluoromethane)	2	U
76-14-2	Freon 114 (1,2-Dichlorotetrafluoroethane)	2	U
74-87-3	Chloromethane	75	D
75-01-4	Vinyl Chloride	2	U
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	2	U
75-69-4	Freon 11 (Trichlorofluoromethane)	2	U
75-35-4	1,1-Dichloroethene	2	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2-difluoroethane)	2	U
107-05-1	3-Chloropropene	2	U
75-09-2	Dichloromethane (Methylene chloride)	2	U
75-34-3	1,1-Dichloroethane	2	U
156-59-2	cis-1,2-Dichloroethene	2	U
67-66-3	Chloroform	2	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
107-06-2	1,2-Dichloroethane	2	U
71-43-2	Benzene	2	U
79-01-6	Trichloroethene	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
108-88-3	Toluene	2	U
10061-02-6	trans-1,3-Dichloropropene	2	U
79-00-5	1,1,2-Trichloroethane	2	U
127-18-4	Tetrachloroethene	2	U
106-93-4	1,2-Dibromoethane	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethyl Benzene	2	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbenzene)	2	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	2	U
100-42-5	Styrene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
622-96-8	4-Ethyltoluene	2	U
108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	2	U
95-63-6	1,2,4-Trimethylbenzene (Pseudo-cumene)	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-44-7	Benzyl chloride	2	U
95-50-1	1,2-Dichlorobenzene	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
87-68-3	Hexachlorobutadiene	2	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank.

D = analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
BLANK SUMMARY

Instrument ID:HP 2                      Sample No.:VBLK                      Lab Sample ID:METH BLANK  
Injection Volume: 250.0(cc)      Date Analyzed:12/13/93      Time Analyzed:15:46  
Lab File ID:C:\HPCHEM\1\DATA\DEC13\0501005.D

THIS BLANK APPLIES TO THE FOLLOWING SAMPLES:

#	SAMPLE NO.	LAB SAMP.ID	LAB FILE ID	CANISTER ID	DATE	TIME
1	A-1 INFLUE	2063169	DEC13\0601006.D	SUMMA0087	12/13/93	16:32



LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: VBLK      Date Collected:    /    /      Date Received:    /    /  
Lab Sample ID: METH BLANK      Date Analyzed: 12/13/93      Time Analyzed: 15:46  
Canister ID:      Pressure Rec'd: 0.0 psia      Final Pressure: 0.0 psia  
Injection Volume: 250.0 cc      Nominal Volume: 250 cc      Dilution Factor: 1.0  
Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC13\0501005.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluorometh	1	U
76-14-2	Freon 114 (1,2-Dichlorotetraflu	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Freon 11 (Trichlorofluorometha	1	U
75-35-4	1,1-Dichloroethene	1	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2	1	U
107-05-1	3-Chloropropene	1	U
75-09-2	Dichloromethane (Methylene chl	2	
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethyl Benzene	1	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbe	1	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	1	U
100-42-5	Styrene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
622-96-8	4-Ethyltoluene	1	U
108-67-8	1,3,5-Trimethylbenzene (Mesity	1	U
95-63-6	1,2,4-Trimethylbenzene (Pseudo	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
100-44-7	Benzyl chloride	1	U
95-50-1	1,2-Dichlorobenzene	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
87-68-3	Hexachlorobutadiene	1	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank.      D = analysis of diluted sample.



**Lancaster Laboratories**  
*Where quality is a science.*

08:08:12 402829  
DIS000 D 1 3  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

A-2 Field Duplicate Summa Canister  
Nease Chemical Site

LLI Sample No. AQ 2063168  
Date Reported 12/15/93  
Date Submitted 12/ 9/93  
Discard Date 12/ 9/93  
Collected 12/ 8/93 by JC  
Time Collected 1210  
P.O. 933-6158  
Rel.

ANALYSIS  
T0-14

RESULT  
AS RECEIVED  
See Attached

LIMIT OF  
QUANTITATION LAB CODE  
900145000P

1 COPY TO Golder Associates Incorporated ATTN: Mr. Jeffrey Hendel

Questions? Contact Environmental  
Client Services at (717) 656-2301  
021 05667 0.00 045000

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Dennis Urban, M.S.  
Chemist IV

See reverse side for explanation of symbols and abbreviations



LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
BLANK SUMMARY

Instrument ID:HP 2                      Sample No.:VBLK                      Lab Sample ID:METH BLANK  
Injection Volume: 250.0(cc)      Date Analyzed:12/10/93      Time Analyzed:09:37  
Lab File ID:C:\HPCHEM\1\DATA\DEC09\0601006.D

THIS BLANK APPLIES TO THE FOLLOWING SAMPLES:

#	SAMPLE NO.	LAB SAMP.ID	LAB FILE ID	CANISTER ID	DATE	TIME
1	A-2 FIELD	2063168	DEC09\0701007.D	SUMMA0084	12/10/93	10:25
2	A-2 FIELD	2063168	DEC09\0801008.D	SUMMA0084	12/10/93	11:13
3	A-2 EFFLUE	2063170	DEC09\0901009.D	SUMMA0062	12/10/93	12:01
4	A-1 IN 500X	2063169DL	DEC09\1101011.D	SUMMA0023	12/10/93	13:46
5	A-1 IN 500X	2063169DL	DEC09\1201012.D	SUMMA0023	12/10/93	14:33

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: VBLK      Date Collected:    /    /      Date Received:    /    /  
Lab Sample ID: METH BLANK      Date Analyzed: 12/10/93      Time Analyzed: 09:37  
Canister ID:      Pressure Rec'd: 0.0 psia      Final Pressure: 0.0 psia  
Injection Volume: 250.0 cc      Nominal Volume: 250 cc      Dilution Factor: 1.0  
Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC09\0601006.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluoromethane)	1	U
76-14-2	Freon 114 (1,2-Dichlorotetrafluoroethane)	1	U
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	1	U
75-00-3	Chloroethane	1	U
75-69-4	Freon 11 (Trichlorofluoromethane)	1	U
75-35-4	1,1-Dichloroethene	1	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2,2-trifluoroethane)	1	U
107-05-1	3-Chloropropene	1	U
75-09-2	Dichloromethane (Methylene chloride)	2	
75-34-3	1,1-Dichloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
107-06-2	1,2-Dichloroethane	1	U
71-43-2	Benzene	1	U
79-01-6	Trichloroethene	1	U
78-87-5	1,2-Dichloropropane	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-02-6	trans-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
106-93-4	1,2-Dibromoethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethyl Benzene	1	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbenzene)	1	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	1	U
100-42-5	Styrene	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
622-96-8	4-Ethyltoluene	1	U
108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	1	U
95-63-6	1,2,4-Trimethylbenzene (Pseudocumene)	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
100-44-7	Benzyl chloride	1	U
95-50-1	1,2-Dichlorobenzene	1	U
120-82-1	1,2,4-Trichlorobenzene	1	U
87-68-3	Hexachlorobutadiene	1	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank.      D = analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A-2 FIELD DUP      Date Collected: 12/08/93      Date Received: 12/09/93  
Lab Sample ID: 2063168      Date Analyzed: 12/10/93      Time Analyzed: 11:13  
Canister ID: SUMMA0084      Pressure Rec'd: 14.7 psia      Final Pressure: 24.7 psia  
Injection Volume: 250.0 cc      Nominal Volume: 250 cc      Dilution Factor: 1.7  
Instrument ID: HP 2      Lab File ID: C:\HPCHEM\1\DATA\DEC09\0801008.D

CAS RN	COMPOUND NAME	CONCENTRATION (ppbv)	Q
75-71-8	Freon 12 (Dichlorodifluoromethane)	2	U
76-14-2	Freon 114 (1,2-Dichlorotetrafluoroethane)	2	U
74-87-3	Chloromethane	77	D
75-01-4	Vinyl Chloride	2	U
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	2	U
75-69-4	Freon 11 (Trichlorofluoromethane)	2	U
75-35-4	1,1-Dichloroethene	2	U
76-13-1	Freon 113 (1,1,2-Trichloro-1,2-difluoroethane)	2	U
107-05-1	3-Chloropropene	2	U
75-09-2	Dichloromethane (Methylene chloride)	2	U
75-34-3	1,1-Dichloroethane	2	U
156-59-2	cis-1,2-Dichloroethene	2	U
67-66-3	Chloroform	2	U
71-55-6	1,1,1-Trichloroethane	2	U
56-23-5	Carbon Tetrachloride	2	U
107-06-2	1,2-Dichloroethane	2	U
71-43-2	Benzene	2	U
79-01-6	Trichloroethene	2	U
78-87-5	1,2-Dichloropropane	2	U
10061-01-5	cis-1,3-Dichloropropene	2	U
108-88-3	Toluene	2	U
10061-02-6	trans-1,3-Dichloropropene	2	U
79-00-5	1,1,2-Trichloroethane	2	U
127-18-4	Tetrachloroethene	2	U
106-93-4	1,2-Dibromoethane	2	U
108-90-7	Chlorobenzene	2	U
100-41-4	Ethyl Benzene	2	U
1330-20-7	m/p-Xylene (1,3/1,4-Dimethylbenzene)	2	U
95-47-6	o-Xylene (1,2-Dimethylbenzene)	2	U
100-42-5	Styrene	2	U
79-34-5	1,1,2,2-Tetrachloroethane	2	U
622-96-8	4-Ethyltoluene	2	U
108-67-8	1,3,5-Trimethylbenzene (Mesitylene)	2	U
95-63-6	1,2,4-Trimethylbenzene (Pseudo-cumene)	2	U
541-73-1	1,3-Dichlorobenzene	2	U
106-46-7	1,4-Dichlorobenzene	2	U
100-44-7	Benzyl chloride	2	U
95-50-1	1,2-Dichlorobenzene	2	U
120-82-1	1,2,4-Trichlorobenzene	2	U
87-68-3	Hexachlorobutadiene	2	U

U = Compound was undetected at the specified limit of quantitation.

B = Compound was found in method blank.      D = analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A1 INFL. GAC1  
Lab Sample ID: 2059678  
Instrument ID: HP 2

Date Collected: 12/01/93  
Date Analyzed: 12/07/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC07\1101010.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	4200	20785	U	4200	20785
76-14-2	Freon 114	4200	29374	U	4200	29374
74-87-3	Chloromethane	4200	8589	U	4200	8589
75-01-4	Vinyl Chloride	4200	10822	U	4200	10822
75-83-9	Bromomethane	4200	16319	U	4200	16319
75-00-3	Chloromethane	4200	11166	U	4200	11166
75-69-4	Freon 11	4200	23534	U	4200	23534
75-35-4	1,1-Dichloroethene	4200	16663	U	4200	16663
76-13-1	Freon 113	4200	32123	U	4200	32123
107-05-1	3-Chloropropene	4200	13055	U	4200	13055
75-09-2	Dichloromethane	4200	14601	U	4200	14601
75-34-3	1,1-Dichloroethane	4200	16663	U	4200	16663
156-59-2	cis-1,2-Dichloroethene	31000	122986	D	4200	16663
67-66-3	Chloroform	4200	20442	U	4200	20442
71-55-6	1,1,1-Trichloroethane	4200	22847	U	4200	22847
56-23-5	Carbon Tetrachloride	4200	26454	U	4200	26454
107-06-2	1,2-Dichloroethane	19000	76933	D	4200	17006
71-43-2	Benzene	110000	350920	D	4200	13399
79-01-6	Trichloroethene	29000	155378	D	4200	22503
78-87-5	1,2-Dichloropropane	4200	19411	U	4200	19411
10061-01-5	cis-1,3-Dichloropropene	4200	19067	U	4200	19067
108-88-3	Toluene	18000	67730	D	4200	15804
10061-02-6	trans-1,3-Dichloropropene	4200	19067	U	4200	19067
79-00-5	1,1,2-Trichloroethane	4200	22847	U	4200	22847
127-18-4	Tetrachloroethene	42000	285153	D	4200	28515
106-93-4	1,2-Dibromoethane	4200	32294	U	4200	32294
108-90-7	Chlorobenzene	4500	20798	D	4200	19411
100-41-4	Ethyl Benzene	4200	18209	U	4200	18209
1330-20-7	m/p-Xylene	4200	18209	U	4200	18209
95-47-6	o-Xylene	4200	18209	U	4200	18209
100-42-5	Styrene	4200	17865	U	4200	17865
79-34-5	1,1,2,2-Tetrachloroethane	8100	55656	D	4200	28859
622-96-8	4-Ethyltoluene	4200	20613	U	4200	20613
108-67-8	1,3,5-Trimethylbenzene	4200	20613	U	4200	20613
95-83-6	1,2,4-Trimethylbenzene	4200	20613	U	4200	20613
541-73-1	1,3-Dichlorobenzene	4200	25252	U	4200	25252
106-46-7	1,4-Dichlorobenzene	4200	25252	U	4200	25252
100-44-7	Benzyl chloride	4200	21816	U	4200	21816
95-50-1	1,2-Dichlorobenzene	40000	240491	D	4200	25252
120-82-1	1,2,4-Trichlorobenzene	4200	31092	U	4200	31092
87-88-3	Hexachlorobutadiene	4200	44834	U	4200	44834

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.  
D = Analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A2 EFFL. GAC2  
Lab Sample ID: 2059679  
Instrument ID: HP 2

Date Collected: 12/01/93  
Date Analyzed: 12/07/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC07\0901008.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	2	9.9	U	2	9.9
76-14-2	Freon 114	2	14.0	U	2	14.0
74-87-3	Chloromethane	2	4.1	U	2	4.1
75-01-4	Vinyl Chloride	2	5.2	U	2	5.2
75-83-9	Bromomethane	2	7.8	U	2	7.8
75-00-3	Chloromethane	2	5.3	U	2	5.3
75-89-4	Freon 11	2	11.2	U	2	11.2
75-35-4	1,1-Dichloroethene	2	7.9	U	2	7.9
76-13-1	Freon 113	2	15.3	U	2	15.3
107-05-1	3-Chloropropene	2	6.2	U	2	6.2
75-09-2	Dichloromethane	2	7.0	U	2	7.0
75-34-3	1,1-Dichloroethane	2	7.9	U	2	7.9
156-59-2	cis-1,2-Dichloroethene	2	7.9	U	2	7.9
67-66-3	Chloroform	2	9.7	U	2	9.7
71-55-6	1,1,1-Trichloroethane	2	10.9	U	2	10.9
56-23-5	Carbon Tetrachloride	2	12.6	U	2	12.6
107-06-2	1,2-Dichloroethane	2	8.1	U	2	8.1
71-43-2	Benzene	2	6.4	D	2	6.4
79-01-6	Trichloroethene	2	10.7	U	2	10.7
78-87-5	1,2-Dichloropropane	2	9.2	U	2	9.2
10061-01-5	cis-1,3-Dichloropropene	2	9.1	U	2	9.1
108-88-3	Toluene	4	15.1	D	2	7.5
10061-02-6	trans-1,3-Dichloropropene	2	9.1	U	2	9.1
79-00-5	1,1,2-Trichloroethane	2	10.9	U	2	10.9
127-18-4	Tetrachloroethene	2	13.6	U	2	13.6
106-93-4	1,2-Dibromoethane	2	15.4	U	2	15.4
108-90-7	Chlorobenzene	2	9.2	U	2	9.2
100-41-4	Ethyl Benzene	2	8.7	U	2	8.7
1330-20-7	m/p-Xylene	2	8.7	U	2	8.7
95-47-6	o-Xylene	2	8.7	U	2	8.7
100-42-5	Styrene	2	8.5	U	2	8.5
79-34-5	1,1,2,2-Tetrachloroethane	2	13.7	U	2	13.7
622-96-8	4-Ethyltoluene	2	9.8	U	2	9.8
108-67-8	1,3,5-Trimethylbenzene	2	9.8	U	2	9.8
95-63-6	1,2,4-Trimethylbenzene	2	9.8	U	2	9.8
541-73-1	1,3-Dichlorobenzene	2	12.0	U	2	12.0
106-46-7	1,4-Dichlorobenzene	2	12.0	U	2	12.0
100-44-7	Benzyl chloride	2	10.4	U	2	10.4
95-50-1	1,2-Dichlorobenzene	2	12.0	U	2	12.0
120-82-1	1,2,4-Trichlorobenzene	2	14.8	U	2	14.8
87-68-3	Hexachlorobutadiene	2	21.3	U	2	21.3

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: VBLK  
Lab Sample ID: METH BLANK  
Instrument ID: HP 2

Date Collected: NA  
Date Analyzed: 12/07/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC07\0701006.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	1	4.9	U	1	4.9
76-14-2	Freon 114	1	7.0	U	1	7.0
74-87-3	Chloromethane	1	2.0	U	1	2.0
75-01-4	Vinyl Chloride	1	2.6	U	1	2.6
75-83-9	Bromomethane	1	3.9	U	1	3.9
75-00-3	Chloromethane	1	2.7	U	1	2.7
75-69-4	Freon 11	1	5.6	U	1	5.6
75-35-4	1,1-Dichloroethene	1	4.0	U	1	4.0
76-13-1	Freon 113	1	7.6	U	1	7.6
107-05-1	3-Chloropropene	1	3.1	U	1	3.1
75-09-2	Dichloromethane	1	3.5	U	1	3.5
75-34-3	1,1-Dichloroethane	1	4.0	U	1	4.0
156-59-2	cis-1,2-Dichloroethene	1	4.0	U	1	4.0
67-66-3	Chloroform	1	4.9	U	1	4.9
71-55-6	1,1,1-Trichloroethane	1	5.4	U	1	5.4
56-23-5	Carbon Tetrachloride	1	6.3	U	1	6.3
107-06-2	1,2-Dichloroethane	1	4.0	U	1	4.0
71-43-2	Benzene	1	3.2	U	1	3.2
79-01-6	Trichloroethene	1	5.4	U	1	5.4
78-87-5	1,2-Dichloropropane	1	4.6	U	1	4.6
10061-01-5	cis-1,3-Dichloropropene	1	4.5	U	1	4.5
108-88-3	Toluene	1	3.8	U	1	3.8
10061-02-6	trans-1,3-Dichloropropene	1	4.5	U	1	4.5
79-00-5	1,1,2-Trichloroethane	1	5.4	U	1	5.4
127-18-4	Tetrachloroethene	1	6.8	U	1	6.8
106-93-4	1,2-Dibromoethane	1	7.7	U	1	7.7
108-90-7	Chlorobenzene	1	4.6	U	1	4.6
100-41-4	Ethyl Benzene	1	4.3	U	1	4.3
1330-20-7	m/p-Xylene	1	4.3	U	1	4.3
95-47-6	o-Xylene	1	4.3	U	1	4.3
100-42-5	Styrene	1	4.3	U	1	4.3
79-34-5	1,1,2,2-Tetrachloroethane	1	6.9	U	1	6.9
622-96-8	4-Ethyltoluene	1	4.9	U	1	4.9
108-67-8	1,3,5-Trimethylbenzene	1	4.9	U	1	4.9
95-63-6	1,2,4-Trimethylbenzene	1	4.9	U	1	4.9
541-73-1	1,3-Dichlorobenzene	1	6.0	U	1	6.0
106-46-7	1,4-Dichlorobenzene	1	6.0	U	1	6.0
100-44-7	Benzyl chloride	1	5.2	U	1	5.2
95-50-1	1,2-Dichlorobenzene	1	6.0	U	1	6.0
120-82-1	1,2,4-Trichlorobenzene	1	7.4	U	1	7.4
87-68-3	Hexachlorobutadiene	1	10.7	U	1	10.7

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.



LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A-1 INFLUENT  
Lab Sample ID: 2063169  
Instrument ID: HP 2

Date Collected: 12/08/93  
Date Analyzed: 12/13/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC13\0601006.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	30	148	U	30	148
76-14-2	Freon 114	30	210	U	30	210
74-87-3	Chloromethane	30	61	U	30	61
75-01-4	Vinyl Chloride	940	2422	D	30	77
75-83-9	Bromomethane	30	117	U	30	117
75-00-3	Chloromethane	30	80	U	30	80
75-69-4	Freon 11	30	168	U	30	168
75-35-4	1,1-Dichloroethene	180	714	D	30	119
76-13-1	Freon 113	30	229	U	30	229
107-05-1	3-Chloropropene	30	93	U	30	93
75-09-2	Dichloromethane	30	104	B D	30	104
75-34-3	1,1-Dichloroethane	30	119	U	30	119
156-59-2	cis-1,2-Dichloroethene	11000	43640	D	30	119
67-66-3	Chloroform	550	2677	D	30	146
71-55-6	1,1,1-Trichloroethane	30	163	U	30	163
56-23-5	Carbon Tetrachloride	30	189	U	30	189
107-06-2	1,2-Dichloroethane	650	2632	D	30	121
71-43-2	Benzene	1700	5423	D	30	96
79-01-6	Trichloroethene	1700	9108	D	30	161
78-87-5	1,2-Dichloropropane	30	139	U	30	139
10061-01-5	cis-1,3-Dichloropropene	30	136	U	30	136
108-88-3	Toluene	1800	6773	D	30	113
10061-02-6	trans-1,3-Dichloropropene	30	136	U	30	136
79-00-5	1,1,2-Trichloroethane	52	283	D	30	163
127-18-4	Tetrachloroethene	3000	20368	D	30	204
106-93-4	1,2-Dibromoethane	30	231	U	30	231
108-90-7	Chlorobenzene	1200	5546	D	30	139
100-41-4	Ethyl Benzene	500	2168	D	30	130
1330-20-7	m/p-Xylene	44	191	D	30	130
95-47-6	o-Xylene	30	130	U	30	130
100-42-5	Styrene	30	128	U	30	128
79-34-5	1,1,2,2-Tetrachloroethane	260	1787	D	30	206
622-96-8	4-Ethyltoluene	30	147	U	30	147
108-67-8	1,3,5-Trimethylbenzene	30	147	U	30	147
95-63-6	1,2,4-Trimethylbenzene	30	147	U	30	147
541-73-1	1,3-Dichlorobenzene	30	180	U	30	180
106-46-7	1,4-Dichlorobenzene	160	962	D	30	180
100-44-7	Benzyl chloride	30	156	U	30	156
95-50-1	1,2-Dichlorobenzene	3900	23448	D	30	180
120-82-1	1,2,4-Trichlorobenzene	30	222	U	30	222
87-68-3	Hexachlorobutadiene	30	320	U	30	320

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.  
D = Analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: VBLK  
Lab Sample ID: METH BLANK  
Instrument ID: HP 2

Date Collected: NA  
Date Analyzed: 12/13/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC13\0501005.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	1	4.9	U	1	4.9
76-14-2	Freon 114	1	7.0	U	1	7.0
74-87-3	Chloromethane	1	2.0	U	1	2.0
75-01-4	Vinyl Chloride	1	2.6	U	1	2.6
75-83-9	Bromomethane	1	3.9	U	1	3.9
75-00-3	Chloromethane	1	2.7	U	1	2.7
75-69-4	Freon 11	1	5.6	U	1	5.6
75-35-4	1,1-Dichloroethene	1	4.0	U	1	4.0
76-13-1	Freon 113	1	7.6	U	1	7.6
107-05-1	3-Chloropropene	1	3.1	U	1	3.1
75-09-2	Dichloromethane	2	7.0		1	3.5
75-34-3	1,1-Dichloroethane	1	4.0	U	1	4.0
156-59-2	cis-1,2-Dichloroethene	1	4.0	U	1	4.0
67-66-3	Chloroform	1	4.9	U	1	4.9
71-55-6	1,1,1-Trichloroethane	1	5.4	U	1	5.4
56-23-5	Carbon Tetrachloride	1	6.3	U	1	6.3
107-06-2	1,2-Dichloroethane	1	4.0	U	1	4.0
71-43-2	Benzene	1	3.2	U	1	3.2
79-01-6	Trichloroethene	1	5.4	U	1	5.4
78-87-5	1,2-Dichloropropane	1	4.6	U	1	4.6
10061-01-5	cis-1,3-Dichloropropene	1	4.5	U	1	4.5
108-88-3	Toluene	1	3.8	U	1	3.8
10061-02-6	trans-1,3-Dichloropropene	1	4.5	U	1	4.5
79-00-5	1,1,2-Trichloroethane	1	5.4	U	1	5.4
127-18-4	Tetrachloroethene	1	6.8	U	1	6.8
106-93-4	1,2-Dibromoethane	1	7.7	U	1	7.7
108-90-7	Chlorobenzene	1	4.6	U	1	4.6
100-41-4	Ethyl Benzene	1	4.3	U	1	4.3
1330-20-7	m/p-Xylene	1	4.3	U	1	4.3
95-47-6	o-Xylene	1	4.3	U	1	4.3
100-42-5	Styrene	1	4.3	U	1	4.3
79-34-5	1,1,2,2-Tetrachloroethane	1	6.9	U	1	6.9
622-96-8	4-Ethyltoluene	1	4.9	U	1	4.9
108-67-8	1,3,5-Trimethylbenzene	1	4.9	U	1	4.9
95-63-6	1,2,4-Trimethylbenzene	1	4.9	U	1	4.9
541-73-1	1,3-Dichlorobenzene	1	6.0	U	1	6.0
106-46-7	1,4-Dichlorobenzene	1	6.0	U	1	6.0
100-44-7	Benzyl chloride	1	5.2	U	1	5.2
95-50-1	1,2-Dichlorobenzene	1	6.0	U	1	6.0
120-82-1	1,2,4-Trichlorobenzene	1	7.4	U	1	7.4
87-68-3	Hexachlorobutadiene	1	10.7	U	1	10.7

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.  
D = Analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A-2 EFFLUENT  
Lab Sample ID: 2063170  
Instrument ID: HP 2

Date Collected: 12/08/93  
Date Analyzed: 12/10/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC09\0901009.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	2	9.9	U	2	9.9
76-14-2	Freon 114	2	14.0	U	2	14.0
74-87-3	Chloromethane	75	153.4	D	2	4.1
75-01-4	Vinyl Chloride	2	5.2	U	2	5.2
75-83-9	Bromomethane	2	7.8	U	2	7.8
75-00-3	Chloromethane	2	5.3	U	2	5.3
75-69-4	Freon 11	2	11.2	U	2	11.2
75-35-4	1,1-Dichloroethene	2	7.9	U	2	7.9
76-13-1	Freon 113	2	15.3	U	2	15.3
107-05-1	3-Chloropropene	2	6.2	U	2	6.2
75-09-2	Dichloromethane	2	7.0	D	2	7.0
75-34-3	1,1-Dichloroethane	2	7.9	U	2	7.9
156-59-2	cis-1,2-Dichloroethene	2	7.9	U	2	7.9
67-66-3	Chloroform	2	9.7	U	2	9.7
71-55-6	1,1,1-Trichloroethane	2	10.9	U	2	10.9
56-23-5	Carbon Tetrachloride	2	12.6	U	2	12.6
107-06-2	1,2-Dichloroethane	2	8.1	U	2	8.1
71-43-2	Benzene	2	6.4	U	2	6.4
79-01-6	Trichloroethene	2	10.7	U	2	10.7
78-87-5	1,2-Dichloropropane	2	9.2	U	2	9.2
10061-01-5	cis-1,3-Dichloropropene	2	9.1	U	2	9.1
108-88-3	Toluene	2	7.5	U	2	7.5
10061-02-6	trans-1,3-Dichloropropene	2	9.1	U	2	9.1
79-00-5	1,1,2-Trichloroethane	2	10.9	U	2	10.9
127-18-4	Tetrachloroethene	2	13.6	U	2	13.6
106-93-4	1,2-Dibromoethane	2	15.4	U	2	15.4
108-90-7	Chlorobenzene	2	9.2	U	2	9.2
100-41-4	Ethyl Benzene	2	8.7	U	2	8.7
1330-20-7	m/p-Xylene	2	8.7	U	2	8.7
95-47-6	o-Xylene	2	8.7	U	2	8.7
100-42-5	Styrene	2	8.5	U	2	8.5
79-34-5	1,1,2,2-Tetrachloroethane	2	13.7	U	2	13.7
622-96-8	4-Ethyltoluene	2	9.8	U	2	9.8
108-67-8	1,3,5-Trimethylbenzene	2	9.8	U	2	9.8
95-63-6	1,2,4-Trimethylbenzene	2	9.8	U	2	9.8
541-73-1	1,3-Dichlorobenzene	2	12.0	U	2	12.0
106-46-7	1,4-Dichlorobenzene	2	12.0	U	2	12.0
100-44-7	Benzyl chloride	2	10.4	U	2	10.4
95-50-1	1,2-Dichlorobenzene	2	12.0	U	2	12.0
120-82-1	1,2,4-Trichlorobenzene	2	14.8	U	2	14.8
87-68-3	Hexachlorobutadiene	2	21.3	U	2	21.3

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.  
D = Analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: A-2 FIELD DUP  
Lab Sample ID: 2063168  
Instrument ID: HP 2

Date Collected: 12/08/93  
Date Analyzed: 12/10/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC09\0801008.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	2	9.9	U	2	9.9
76-14-2	Freon 114	2	14.0	U	2	14.0
74-87-3	Chloromethane	77	157.5	D	2	4.1
75-01-4	Vinyl Chloride	2	5.2	U	2	5.2
75-83-9	Bromomethane	2	7.8	U	2	7.8
75-00-3	Chloromethane	2	5.3	U	2	5.3
75-69-4	Freon 11	2	11.2	U	2	11.2
75-35-4	1,1-Dichloroethene	2	7.9	U	2	7.9
76-13-1	Freon 113	2	15.3	U	2	15.3
107-05-1	3-Chloropropene	2	6.2	U	2	6.2
75-09-2	Dichloromethane	2	7.0	D	2	7.0
75-34-3	1,1-Dichloroethane	2	7.9	U	2	7.9
156-59-2	cis-1,2-Dichloroethene	2	7.9	U	2	7.9
67-66-3	Chloroform	2	9.7	U	2	9.7
71-55-6	1,1,1-Trichloroethane	2	10.9	U	2	10.9
56-23-5	Carbon Tetrachloride	2	12.6	U	2	12.6
107-06-2	1,2-Dichloroethane	2	8.1	U	2	8.1
71-43-2	Benzene	2	6.4	U	2	6.4
79-01-6	Trichloroethene	2	10.7	U	2	10.7
78-87-5	1,2-Dichloropropane	2	9.2	U	2	9.2
10061-01-5	cis-1,3-Dichloropropene	2	9.1	U	2	9.1
108-88-3	Toluene	2	7.5	U	2	7.5
10061-02-6	trans-1,3-Dichloropropene	2	9.1	U	2	9.1
79-00-5	1,1,2-Trichloroethane	2	10.9	U	2	10.9
127-18-4	Tetrachloroethene	2	13.6	U	2	13.6
106-93-4	1,2-Dibromoethane	2	15.4	U	2	15.4
108-90-7	Chlorobenzene	2	9.2	U	2	9.2
100-41-4	Ethyl Benzene	2	8.7	U	2	8.7
1330-20-7	m/p-Xylene	2	8.7	U	2	8.7
95-47-6	o-Xylene	2	8.7	U	2	8.7
100-42-5	Styrene	2	8.5	U	2	8.5
79-34-5	1,1,2,2-Tetrachloroethane	2	13.7	U	2	13.7
622-96-8	4-Ethyltoluene	2	9.8	U	2	9.8
108-67-8	1,3,5-Trimethylbenzene	2	9.8	U	2	9.8
95-63-6	1,2,4-Trimethylbenzene	2	9.8	U	2	9.8
541-73-1	1,3-Dichlorobenzene	2	12.0	U	2	12.0
106-46-7	1,4-Dichlorobenzene	2	12.0	U	2	12.0
100-44-7	Benzyl chloride	2	10.4	U	2	10.4
95-50-1	1,2-Dichlorobenzene	2	12.0	U	2	12.0
120-82-1	1,2,4-Trichlorobenzene	2	14.8	U	2	14.8
87-68-3	Hexachlorobutadiene	2	21.3	U	2	21.3

U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.  
D = Analysis of diluted sample.

LANCASTER LABORATORIES INC.  
VOLATILE ORGANICS IN AIR  
SUMMA CANISTER SAMPLE  
ANALYSIS DATA SHEET

Sample No.: VBLK  
Lab Sample ID: METH BLANK  
Instrument ID: HP 2

Date Collected: NA  
Date Analyzed: 12/10/93  
Lab File ID (Initial): C:\HPCHEM\1\DATA\DEC09\0601006.

CAS RN	COMPOUND NAME	Concentration (ppbv)	Concentration (ug/m3)	Q	LOQ (ppbv)	LOQ (ug/m3)
75-43-4	Freon 12	1	4.9	U	1	4.9
76-14-2	Freon 114	1	7.0	U	1	7.0
74-87-3	Chloromethane	1	2.0	U	1	2.0
75-01-4	Vinyl Chloride	1	2.6	U	1	2.6
75-83-9	Bromomethane	1	3.9	U	1	3.9
75-00-3	Chloromethane	1	2.7	U	1	2.7
75-69-4	Freon 11	1	5.6	U	1	5.6
75-35-4	1,1-Dichloroethene	1	4.0	U	1	4.0
76-13-1	Freon 113	1	7.6	U	1	7.6
107-05-1	3-Chloropropene	1	3.1	U	1	3.1
75-09-2	Dichloromethane	2	7.0		1	3.5
75-34-3	1,1-Dichloroethane	1	4.0	U	1	4.0
156-59-2	cis-1,2-Dichloroethene	1	4.0	U	1	4.0
67-66-3	Chloroform	1	4.9	U	1	4.9
71-55-6	1,1,1-Trichloroethane	1	5.4	U	1	5.4
56-23-5	Carbon Tetrachloride	1	6.3	U	1	6.3
107-06-2	1,2-Dichloroethane	1	4.0	U	1	4.0
71-43-2	Benzene	1	3.2	U	1	3.2
79-01-6	Trichloroethene	1	5.4	U	1	5.4
78-87-5	1,2-Dichloropropane	1	4.6	U	1	4.6
10061-01-5	cis-1,3-Dichloropropene	1	4.5	U	1	4.5
108-88-3	Toluene	1	3.8	U	1	3.8
10061-02-6	trans-1,3-Dichloropropene	1	4.5	U	1	4.5
79-00-5	1,1,2-Trichloroethane	1	5.4	U	1	5.4
127-18-4	Tetrachloroethene	1	6.8	U	1	6.8
106-93-4	1,2-Dibromoethane	1	7.7	U	1	7.7
108-90-7	Chlorobenzene	1	4.6	U	1	4.6
100-41-4	Ethyl Benzene	1	4.3	U	1	4.3
1330-20-7	m/p-Xylene	1	4.3	U	1	4.3
95-47-6	o-Xylene	1	4.3	U	1	4.3
100-42-5	Styrene	1	4.3	U	1	4.3
79-34-5	1,1,2,2-Tetrachloroethane	1	6.9	U	1	6.9
622-96-8	4-Ethyltoluene	1	4.9	U	1	4.9
108-67-8	1,3,5-Trimethylbenzene	1	4.9	U	1	4.9
95-63-6	1,2,4-Trimethylbenzene	1	4.9	U	1	4.9
541-73-1	1,3-Dichlorobenzene	1	6.0	U	1	6.0
106-46-7	1,4-Dichlorobenzene	1	6.0	U	1	6.0
100-44-7	Benzyl chloride	1	5.2	U	1	5.2
95-50-1	1,2-Dichlorobenzene	1	6.0	U	1	6.0
120-82-1	1,2,4-Trichlorobenzene	1	7.4	U	1	7.4
87-68-3	Hexachlorobutadiene	1	10.7	U	1	10.7

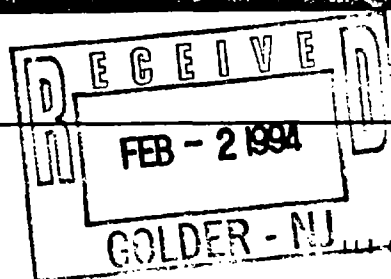
U = Compound was detected at the specified limit of quantitation.  
B = Compound was found in method blank.  
D = Analysis of diluted sample.

## Quality Control Report



Lancaster Laboratories

Where quality is a science.



older Associates Incorporated  
 -5 Effluent Matrix Spike Grab Water Sample  
 R-W Salem/933-6158 Nease Chemical Superfund Site

Sample No. 2061640  
 Group No. 402466  
 Page No. 1

LOQ	UNITS	BLANK	MS or D RPD	MS % REC	MSD % REC	LCS	LCS LIMITS LOW HIGH
---	-----	-----	-----	-----	-----	---	-----
108 Purgeables (SW846/B240A)							
1258	Chloromethane						
10.	ug/l	< 10.	ug/l	11.1 (1)	170.0	190.0	
1257	Bromomethane						
10.	ug/l	< 10.	ug/l	5.4 (1)	90.0	95.0	
3492	Vinyl Chloride						
10.	ug/l	< 10.	ug/l	3.8 (1)	130.0	135.0	
3494	Chloroethane						
0.	ug/l	< 10.	ug/l	0.0 (1)	130.0	130.0	
3495	Acrolein						
100.	ug/l	< 100.	ug/l	19.4 (1)	93.3	113.3	
3496	Acrylonitrile						
100.	ug/l	< 100.	ug/l	25.0 (1)	93.3	120.0	
3497	Methylene Chloride						
5.	ug/l	< 5.	ug/l	0.0 (1)	105.0	105.0	
1264	Trichlorofluoromethane						
5.	ug/l	< 5.	ug/l	4.7 (1)	105.0	110.0	
3500	1,1-Dichloroethene						
5.	ug/l	< 5.	ug/l	5.1 (1)	100.0	95.0	
3501	1,1-Dichloroethane						
5.	ug/l	< 5.	ug/l	4.7 (1)	105.0	110.0	
3502	1,2-Dichloroethene (total)						
5.	ug/l	< 5.	ug/l	2.2	107.5	105.0	
3503	Chloroform						
5.	ug/l	< 5.	ug/l	4.4 (1)	110.0	115.0	
3504	1,2-Dichloroethane						
5.	ug/l	< 5.	ug/l	4.7	95.0	85.0	
3505	1,1,1-Trichloroethane						
5.	ug/l	< 5.	ug/l	4.3 (1)	120.0	115.0	
3506	Carbon Tetrachloride						
5.	ug/l	< 5.	ug/l	0.0 (1)	110.0	110.0	
3508	Bromodichloromethane						
5.	ug/l	< 5.	ug/l	0.0 (1)	120.0	120.0	
3523	1,1,2,2-Tetrachloroethane						
5.	ug/l	< 5.	ug/l	3.3	100.0	105.0	
3509	1,2-Dichloropropane						
5.	ug/l	< 5.	ug/l	4.7 (1)	105.0	110.0	
3510	trans-1,3-Dichloropropene						
5.	ug/l	< 5.	ug/l	7.1 (1)	101.3	108.7	
3511	Trichloroethene						
5.	ug/l	< 5.	ug/l	0.0 (1)	115.0	115.0	
3512	Dibromochloromethane						
5.	ug/l	< 5.	ug/l	4.7 (1)	105.0	110.0	
3513	1,1,2-Trichloroethane						
5.	ug/l	< 5.	ug/l	9.5 (1)	100.0	110.0	
3515	Benzene						
5.	ug/l	< 5.	ug/l	0.0 (1)	110.0	110.0	
3516	cis-1,3-Dichloropropene						
5.	ug/l	< 5.	ug/l	4.7 (1)	105.0	110.0	

(1) The result for one or both determinations was less than five times the LOQ



Lancaster Laboratories, Inc.  
 2425 New Holland Pike  
 Lancaster, PA 17601-5994  
 717-656-2301

See reverse side for explanation of symbols and abbreviations



\* 227C  
 3/14/95



**Lancaster Laboratories**  
Where quality is a science.

Under Associates Incorporated  
SP-5 Effluent Matrix Spike Grab Water Sample  
R-W Salem/933-6158 Nease Chemical Superfund Site

LL1 Sample No. 2061640  
Group No. 402466  
Page No. 2

LOQ	UNITS	BLANK	MS or D RPD	MS % REC	MSD % REC	LCS	LCS LIMITS	
---	-----	-----	-----	-----	-----	---	LOW	HIGH
3645 2-Chloroethyl Vinyl Ether								
10. ug/l		< 10. ug/l	18.2 (1)	100.0	120.0			
3518 Bromoform								
5. ug/l		< 5. ug/l	4.9 (1)	100.0	105.0			
3522 Tetrachloroethene								
5. ug/l		< 5. ug/l	4.4 (1)	115.0	110.0			
3524 Toluene								
5. ug/l		< 5. ug/l	0.0 (1)	110.0	110.0			
3525 Chlorobenzene								
ug/l		< 5. ug/l	4.4 (1)	110.0	115.0			
26 Ethylbenzene								
5. ug/l		< 5. ug/l	0.0 (1)	110.0	110.0			
3529 Xylene (total)								
5. ug/l		< 5. ug/l	3.3	98.3	101.7			
43 Aluminum								
.05 mg/l		< 0.050 mg/l	6.9	92.6		2.1617	1.5998	2.4002
1744 Antimony								
.05 mg/l		< 0.050 mg/l	0.0 (1)	88.0		.4616	.4000	.6001
46 Barium								
.025 mg/l		< 0.025 mg/l	3.4 (1)	91.9		1.9267	1.5998	2.4002
1747 Beryllium								
.0025 mg/l		< 0.0025 mg/l	0.0 (1)	117.1		.0483	.0400	.0600
50 Calcium								
.5 mg/l		< 0.050 mg/l	.2	362.4	(2)	4.2510	3.1996	4.8004
51 Chromium								
.013 mg/l		< 0.013 mg/l	1.1 (1)	90.0		.1983	.1600	.2400
1752 Cobalt								
.013 mg/l		< 0.013 mg/l	1.6 (1)	83.2		.4821	.4000	.6001
53 Copper								
.005 mg/l		< 0.0050 mg/l	3.1	94.4		.2508	.2000	.3000
1754 Iron								
.025 mg/l		< 0.025 mg/l	7.8 (1)	82.9		1.0672	.7999	1.2001
Magnesium								
.025 mg/l		< 0.025 mg/l	2.8	-7.3	(2)	2.0196	1.5998	2.4002
1758 Manganese								
.0025 mg/l		< 0.0025 mg/l	2.8	60.7	(2)	.4762	.4000	.6001
51 Nickel								
.013 mg/l		< 0.013 mg/l	2.0	84.2		.4826	.4000	.6001
1762 Potassium								
.13 mg/l		< 0.13 mg/l	2.2	92.6	(2)	3.8980	3.1996	4.8004
1756 Silver								
.005 mg/l		< 0.0050 mg/l	187.6 (1)	107.2		.0483	.0400	.0600
57 Sodium								
1. mg/l		< 0.10 mg/l	1.3	191.0	(2)	3.9940	3.1996	4.8004
1771 Vanadium								
.0025 mg/l		< 0.0025 mg/l	178.9 (1)	84.9		.4731	.4000	.6001
72 Zinc								
.005 mg/l		0.0062 mg/l	2.4	78.7		.4789	.4000	.6001
0249 Cadmium								
.0025 mg/l		< 0.0025 mg/l	0.0 (1)	90.0		.0450	.0400	.0600

(1) The result for one or both determinations was less than five times the LOQ  
(2) The background result was more than four times the spike added.



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Older Associates Incorporated  
SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. 2061640  
Group No. 402466  
Page No. 3

LOQ	UNITS	BLANK	MS or D RPD	MS % REC	MSD % REC	LCS	LCS LIMITS	
---	-----	-----	-----	-----	-----	---	LOW	HIGH
59 Mercury								
.0002	mg/l	< 0.00020	mg/l	200.0 (1)	94.0	.0010	.0008	.0012
1045 Arsenic (furnace method)								
.01	mg/l	< 0.010	mg/l	200.0 (1)	96.0	.0402	.0320	.0480
1055 Lead (furnace method)								
.003	mg/l	< 0.0030	mg/l	164.7 (1)	81.6	.0197	.0160	.0240
64 Selenium (furnace method)								
.005	mg/l	< 0.0050	mg/l	24.6 (1)	82.2	.0093	.0080	.0120
1073 Thallium (furnace method)								
.01	mg/l	< 0.010	mg/l	160.0 (1)	96.0	.0525	.0400	.0600
-----								
1599 P.P. Pesticides (SW846/8080)								
-----								
1600 Alpha BHC								
.01	ug/l	< 0.01	ug/l	11.7	84.0	74.8		
1601 Beta BHC								
.01	ug/l	< 0.01	ug/l	13.6	94.0	82.0		
1602 Gamma BHC - Lindane								
.01	ug/l	< 0.01	ug/l	11.0	95.5	85.5		
1603 Delta BHC								
.01	ug/l	< 0.01	ug/l	12.2	100.0	88.5		
1604 Heptachlor								
.01	ug/l	< 0.01	ug/l	7.5	83.0	77.0		
1605 Aldrin								
.01	ug/l	< 0.01	ug/l	10.7	79.0	71.0		
1606 Heptachlor Epoxide								
.01	ug/l	< 0.01	ug/l	20.4	102.5	83.5		
1607 DDE								
.01	ug/l	< 0.01	ug/l	8.3	87.5	80.5		
1608 DDD								
.01	ug/l	< 0.01	ug/l	0.0	76.0	76.0		
1609 DDT								
.01	ug/l	< 0.01	ug/l	4.9	93.5	89.0		
1610 Dieldrin								
.01	ug/l	< 0.01	ug/l	11.5	105.5	94.0		
1611 Endrin								
.01	ug/l	< 0.01	ug/l	9.2	107.5	98.0		
1860 Methoxychlor								
.05	ug/l	< 0.05	ug/l	20.1	116.8	95.5		
1612 Chlordane								
.3	ug/l	< 0.3	ug/l					
1613 Toxaphene								
.4	ug/l	< 4.	ug/l					
1616 Endosulfan I								
.01	ug/l	< 0.01	ug/l	11.0	91.5	82.0		
1615 Endosulfan II								
.01	ug/l	< 0.01	ug/l	21.5	85.0	68.5	88.0	75.9 120.0
1617 Endosulfan Sulfate								
.03	ug/l	< 0.03	ug/l	5.9	90.5	96.0		
1618 Endrin Aldehyde								
.1	ug/l	< 0.1	ug/l	20.7 (1)	86.5	106.5		

(1) The result for one or both determinations was less than five times the LOQ



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SP-5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

LLI Sample No. 2061640  
Group No. 402466  
Page No. 4

LOQ	UNITS	BLANK	MS or D RPD	MS % REC	MSD % REC	LCS	LCS LIMITS	
---	-----	-----	-----	-----	-----	---	LOW	HIGH
24 Acid Extractables SW846/B270A								
3924	2-chlorophenol							
10.	ug/l	< 10.	ug/l	1.7	93.4	94.9		
3925	phenol							
10.	ug/l	< 10.	ug/l	3.9 (1)	47.7	49.6		
3926	2-nitrophenol							
10.	ug/l	< 10.	ug/l	2.8	98.7	101.5		
3927	2,4-dimethylphenol							
10.	ug/l	< 10.	ug/l	3.8	81.3	78.3		
3928	2,4-dichlorophenol							
10.	ug/l	< 10.	ug/l	5.5	89.0	94.1		
3929	4-chloro-3-methylphenol							
10.	ug/l	< 10.	ug/l	2.7	93.0	95.5		
3930	2,4,6-trichlorophenol							
10.	ug/l	< 10.	ug/l	1.5	93.6	95.1		
3931	2,4-dinitrophenol							
25.	ug/l	< 25.	ug/l	16.5 (1)	157.6	133.7		
3932	4-nitrophenol							
25.	ug/l	< 25.	ug/l	.7 (1)	48.6	48.3		
3933	4,6-dinitro-2-methylphenol							
25.	ug/l	< 25.	ug/l	4.3 (1)	116.5	111.6		
3934	pentachlorophenol							
25.	ug/l	< 25.	ug/l	17.0 (1)	114.7	96.7		
1425 Base Neutrals (SW846/B270A)								
3935	N-nitrosodimethylamine							
10.	ug/l	< 10.	ug/l	2.3	67.0	68.5		
3936	bis (2-chloroethyl) ether							
10.	ug/l	< 10.	ug/l	2.7	94.6	97.1		
3937	1,3-dichlorobenzene							
10.	ug/l	< 10.	ug/l	2.1	88.6	90.5		
3938	1,4-dichlorobenzene							
10.	ug/l	< 10.	ug/l	5.4	85.0	89.8		
3939	1,2-dichlorobenzene							
10.	ug/l	< 10.	ug/l	5.1	84.1	88.6		
3940	bis (2-chloroisopropyl) ether							
10.	ug/l	< 10.	ug/l	3.5	99.6	103.1		
3941	hexachloroethane							
10.	ug/l	< 10.	ug/l	.6	83.8	84.3		
3942	N-nitrosodi-n-propylamine							
10.	ug/l	< 10.	ug/l	2.6	100.8	103.4		
3943	nitrobenzene							
10.	ug/l	< 10.	ug/l	1.6	94.5	96.0		
3944	isophorone							
10.	ug/l	< 10.	ug/l	3.1	93.5	96.4		
3945	bis (2-chloroethoxy) methane							
10.	ug/l	< 10.	ug/l	5.5	94.0	99.4		

(T) The result for one or both determinations was less than five times the LOQ



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Older Associates Incorporated  
#5 Effluent Matrix Spike Grab Water Sample  
R-N Salem/933-6158 Mease Chemical Superfund Site

LLI Sample No. 2061640  
Group No. 402466  
Page No. 5

---	LOQ ---	UNITS -----	BLANK -----	MS or D RPD -----	MS % REC -----	MSD % REC -----	LCS ---	LCS LIMITS	
								LOW ---	HIGH ----
3946	1,2,4-trichlorobenzene								
10.	ug/l	< 10.	ug/l	3.7	86.5	89.8			
3947	naphthalene								
10.	ug/l	< 10.	ug/l	5.0	86.6	91.0			
3948	hexachlorobutadiene								
10.	ug/l	< 10.	ug/l	3.0	77.1	79.5			
3949	hexachlorocyclopentadiene								
10.	ug/l	< 10.	ug/l	6.4	85.3	91.0			
3950	2-chloronaphthalene								
10.	ug/l	< 10.	ug/l	1.2	87.3	88.4			
3951	acenaphthylene								
10.	ug/l	< 10.	ug/l	1.7	90.8	92.3			
3952	dimethyl phthalate								
10.	ug/l	< 10.	ug/l	2.9	83.4	85.8			
3953	2,6-dinitrotoluene								
10.	ug/l	< 10.	ug/l	1.2	103.1	104.3			
3954	acenaphthene								
10.	ug/l	< 10.	ug/l	2.0	92.0	93.9			
3955	2,4-dinitrotoluene								
10.	ug/l	< 10.	ug/l	1.7	107.0	108.8			
3956	fluorene								
10.	ug/l	< 10.	ug/l	1.8	86.5	88.0			
3957	4-chlorophenyl phenyl ether								
10.	ug/l	< 10.	ug/l	1.9	85.0	86.6			
3958	diethyl phthalate								
10.	ug/l	< 10.	ug/l	6.4	90.0	96.0			
3959	1,2-diphenylhydrazine								
10.	ug/l	< 10.	ug/l	1.1	98.7	97.6			
3960	N-nitrosodiphenylamine								
10.	ug/l	< 10.	ug/l	.1	106.2	106.3			
3961	4-bromophenyl phenyl ether								
10.	ug/l	< 10.	ug/l	2.7	90.9	88.4			
3962	hexachlorobenzene								
10.	ug/l	< 10.	ug/l	2.2	94.0	91.9			
3963	phenanthrene								
10.	ug/l	< 10.	ug/l	.4	93.2	92.8			
-----									
26 Base Neut., cont (SWB46/B270A)									
-----									
3964	anthracene								
10.	ug/l	< 10.	ug/l	.2	85.6	85.7			
3965	di-n-butyl phthalate								
10.	ug/l	< 10.	ug/l	1.4	88.1	89.3			
3966	fluoranthene								
10.	ug/l	< 10.	ug/l	1.6	95.8	94.3			
3967	pyrene								
10.	ug/l	< 10.	ug/l	1.4	103.1	104.5			
3968	benzidine								
100.	ug/l	< 100.	ug/l	11.0 (1)	55.2	61.6			
3969	butyl benzyl phthalate								
10.	ug/l	< 10.	ug/l	1.1	101.4	102.6			

(1) The result for one or both determinations was less than five times the LOQ



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Ider Associates Incorporated  
 SP-5 Effluent Matrix Spike Grab Water Sample  
 R-N Salem/933-6158 Nease Chemical Superfund Site

LLJ Sample No. 2061640  
 Group No. 402466  
 Page No. 6

LOQ	UNITS	BLANK	MS or D RPD	MS % REC	MSD % REC	LCS	LCS LIMITS	
---	----	-----	-----	-----	-----	---	LOW	HIGH
3970	benzo (a) anthracene							
10.	ug/l	< 10.	ug/l	1.7	97.2	98.9		
3971	chrysene							
10.	ug/l	< 10.	ug/l	.8	96.4	97.2		
3972	3,3'-dichlorobenzidine							
20.	ug/l	< 20.	ug/l	6.0 (1)	97.3	103.3		
3973	bis (2-ethylhexyl) phthalate							
10.	ug/l	< 10.	ug/l	2.4	99.8	102.2		
3974	di-n-octyl phthalate							
10.	ug/l	< 10.	ug/l	4.3	94.5	90.6		
75	benzo (b) fluoranthene							
10.	ug/l	< 10.	ug/l	0.0	87.0	87.1		
3976	benzo (K) fluoranthene							
10.	ug/l	< 10.	ug/l	5.1	86.6	82.3		
3977	benzo (a) pyrene							
10.	ug/l	< 10.	ug/l	.3	82.1	82.4		
3978	indeno (1,2,3-cd) pyrene							
10.	ug/l	< 10.	ug/l	4.7	80.1	84.0		
3979	dibenz (a,h) anthracene							
10.	ug/l	< 10.	ug/l	4.7	88.7	93.0		
3980	benzo (ghi) perylene							
10.	ug/l	< 10.	ug/l	5.1	80.4	84.7		
3943	Total Cyanide							
5.	ug/l	< 5.0	ug/l	0.0 (1)	109.8	96.1530	80.0000	120.0000

(1) The result for one or both determinations was less than five times the LOQ



Lancaster Laboratories, Inc  
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 Lancaster, PA 17601-5994  
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Ider Associates Incorporated  
 SP-5 Effluent Matrix Spike Grab Water Sample  
 R-N Salcm/933-6158 Nease Chemical Superfund Site

LLI Sample No. 2061640  
 Group No. 402466  
 Page No. 7

## SURROGATE SUMMARY

	SURROGATE	RECOVERY %	SURROGATE LIMITS	
			LOW	HIGH
1424 Acid Extractables SW846/B270A	d5-phenol	38.9	10.0	94.0
	o-Fphenol	61.2	21.0	100.0
	2,4,6-TBP	89.9	10.0	123.0
1425 Base Neutrals (SW846/B270A)	d5-nitrobz	94.2	35.0	114.0
	2-fbiphen	82.5	43.0	116.0
	d14-TPH	89.5	33.0	141.0
1508 Purgeables (SW846/8240A)	d4-1,2 DCE	98.0	76.0	114.0
	d8-toluene	100.0	88.0	110.0
	BfB	97.0	86.0	115.0
1599 P.P. Pesticides (SW846/B080)	DBC	71.0	60.0	120.0
	TCMX	72.0	60.0	120.0



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Order Associates Incorporated  
 Surge Tank (Influent) Filtered Grab Water

LLI Sample No. 2059388  
 Group No. 401894  
 Page No. 1

R-W Salem/933-6158 Nease Chemical Superfund Site

LOQ	UNITS	BLANK	MS or D RPD	MS % REC	MSD % REC	LCS	LCS LIMITS	
							LOW	HIGH
13 Aluminum								
.05	mg/l	< 0.050	mg/l	3.3	31.2	(2)	2.2998	1.5998 2.4002
4 Antimony								
.05	mg/l	< 0.050	mg/l	0.0 (1)	83.9		.4566	.4000 .6001
1746 Barium								
.025	mg/l	< 0.025	mg/l	2.2 (1)	87.7		1.8629	1.5998 2.4002
7 Beryllium								
.013	mg/l	< 0.0012	mg/l	6.9 (1)	110.2		.0462	.0400 .0600
1749 Cadmium								
.0025	mg/l	< 0.0025	mg/l	12.7 (1)	105.6		.0425	.0400 .0600
Calcium								
	mg/l	< 0.050	mg/l	3.3	111.1	(2)	3.8450	3.1996 4.8004
1751 Chromium								
.013	mg/l	< 0.013	mg/l	2.5 (1)	82.8		.1921	.1600 .2400
12 Cobalt								
.013	mg/l	< 0.013	mg/l	.2 (1)	79.2		.4617	.4000 .6001
1753 Copper								
.005	mg/l	< 0.0050	mg/l	2.7 (1)	90.4		.2373	.2000 .3000
54 Iron								
.025	mg/l	< 0.025	mg/l	2.1	-62.3	(2)	1.0061	.7999 1.2001
57 Magnesium								
.025	mg/l	< 0.025	mg/l	3.3	-42.7	(2)	1.9478	1.5998 2.4002
1758 Manganese								
.0025	mg/l	< 0.0025	mg/l	2.0	36.9	(2)	.4573	.4000 .6001
51 Nickel								
.013	mg/l	< 0.013	mg/l	1.9	77.2		.4651	.4000 .6001
1762 Potassium								
.13	mg/l	< 0.13	mg/l	3.2	88.7	(2)	3.9075	3.1996 4.8004
56 Silver								
.005	mg/l	< 0.0050	mg/l	0.0 (1)	88.6		.0456	.0400 .0600
1767 Sodium								
.1	mg/l	< 0.10	mg/l	3.9	-171.1	(2)	4.0787	3.1996 4.8004
Vanadium								
.25	mg/l	< 0.0025	mg/l	5.1 (1)	82.3		.4618	.4000 .6001
72 Zinc								
.005	mg/l	0.0060	mg/l	.2	77.9		.4109	.4000 .6001
59 Mercury								
.0002	mg/l	< 0.00020	mg/l	85.7 (1)	89.0		.0010	.0008 .0012
5 Arsenic (furnace method)								
.01	mg/l	< 0.010	mg/l	.8 (1)	101.7		.0380	.0320 .0480
1055 Lead (furnace method)								
.003	mg/l	< 0.0030	mg/l	6.7 (1)	46.5		.0177	.0160 .0240
54 Selenium (furnace method)								
.005	mg/l	< 0.0050	mg/l	85.4 (1)	46.9		.0108	.0080 .0120
1073 Thallium (furnace method)								
.01	mg/l	< 0.010	mg/l	100.0 (1)	96.2		.0536	.0400 .0600

(1) The result for one or both determinations was less than five times the LOQ

(2) The background result was more than four times the spike added.



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**Rinsate Blank**



15:36:20 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WV 2063231  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 7/93 by JC  
Time Collected 1600  
P.O. 933-6158  
Rel.

Rinsate Blank Filtered Grab Water Sample  
Nease Chemical Superfund Site

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
Calcium	< 0.20 mg/l The analysis for calcium was performed by JMH on 12/27/93. The method used was EPA SW-846, Method 7140.	0.20	025001400P*
Mercury	< 0.00020 mg/l The analysis for mercury was performed by NSM on 12/10/93. The method used was EPA SW-846, Method 7470.	0.00020025902500P*	
Arsenic (furnace method)	< 0.010 mg/l The analysis for arsenic was performed by BB on 12/13/93. The method used was EPA SW-846, Method 7060.	0.010	104503000P*
Lead (furnace method)	< 0.0030 mg/l The analysis for lead was performed by MST on 12/14/93. The method used was EPA SW-846, Method 7421.	0.0030	105503000P*
Selenium (furnace method)	< 0.0050 mg/l The analysis for selenium was performed by BB on 12/15/93. The method used was EPA SW-846, Method 7740.	0.0050	106403000P*
Thallium (furnace method)	< 0.010 mg/l The analysis for thallium was performed by MST on 12/11/93. The method used was EPA SW-846, Method 7841.	0.010	107303000P*
Aluminum	< 0.050 mg/l	0.050	174301400P*
Antimony	< 0.050 mg/l	0.050	174401400P*
Barium	< 0.025 mg/l	0.025	174601400P*
Beryllium	< 0.0025 mg/l	0.0025	174701400P*
Cadmium	< 0.0025 mg/l	0.0025	174901400P*
Chromium	< 0.013 mg/l	0.013	175101400P*
Cobalt	< 0.013 mg/l	0.013	175201400P*
Copper	< 0.0050 mg/l	0.0050	175301400P*
Iron	< 0.025 mg/l	0.025	175401400P*
Magnesium	0.032 mg/l	0.025	175701400P*
Manganese	0.0029 mg/l	0.0025	175801400P*
Nickel	< 0.013 mg/l	0.013	176101400P*
Potassium	< 0.13 mg/l	0.13	176201400P*
Silver	< 0.0050 mg/l	0.0050	176601400P*
Sodium	0.15 mg/l	0.10	176701400P*
Vanadium	< 0.0025 mg/l	0.0025	177101400P*
Zinc	< 0.0050 mg/l	0.0050	177201400P*

This sample was field filtered for dissolved metals.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



Lancaster Laboratories, Inc.  
2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations



\* 2216  
9 13 9





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15:36:20 402840 REP  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

Rinsate Blank Filtered Grab Water Sample  
Nease Chemical Superfund Site

LLI Sample No. VW 2063231  
Date Reported 1/25/94  
Date Submitted 12/ 9/93  
Discard Date 2/ 2/94  
Collected 12/ 7/93 by JC  
Time Collected 1600  
P.O. 933-6158  
Rel.

ANALYSIS	RESULT AS RECEIVED	LIMIT OF QUANTITATION	LAB CODE
----------	-----------------------	--------------------------	----------

The analyses for antimony, barium, beryllium, cobalt, copper, iron, manganese, nickel, silver, and vanadium were performed by NCH on 12/14/93. The method used was EPA SW-846, Method 6010.

The analyses for cadmium, potassium, and zinc were performed by DJP on 12/16/93. The method used was EPA SW-846, Method 6010.

The analyses for aluminum, chromium, magnesium, and sodium were performed by NCH on 12/20/93. The method used was EPA SW-846, Method 6010.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 15.00 041200

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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**Trip Blanks**

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15:41:00 401894 REP

DIS000 D 1 13

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059399  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93

Trip Blank Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

Time Collected -  
P.O. 933-6158  
Rel.

ANALYSIS  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED  
attached

LIMIT OF  
QUANTITATION  
LAB CODE  
150827000P\*

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Questions? Contact Environmental  
Client Services at (717) 656-2301  
332 05667 0.00 027000

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Lancaster, PA 17601-5994  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

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15:41:01 401894 REP  
DIS000 D 1 13  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2059399  
Date Reported 1/25/94  
Date Submitted 12/ 2/93  
Discard Date 12/ 2/93

Trip Blank Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

Time Collected -  
P.O. 933-6158  
Rel.

	RESULT	LIMIT OF	LAB CODE
	AS RECEIVED	QUANTITATION	
Purgeables (SW846/8240A)			
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000N
Vinyl Chloride	< 10. ug/l	10.	349200000N
Chloroethane	< 10. ug/l	10.	349400000N
Acrolein	< 100. ug/l	100.	349500000N
Acrylonitrile	< 100. ug/l	100.	349600000N
Methylene Chloride	< 5. ug/l	5.	349700000N
Trichlorofluoromethane	< 5. ug/l	5.	126400000N
1,1-Dichloroethene	< 5. ug/l	5.	350000000N
1,1-Dichloroethane	< 5. ug/l	5.	350100000N
1,2-Dichloroethene (total)	< 5. ug/l	5.	350200000N
Chloroform	< 5. ug/l	5.	350300000N
1,2-Dichloroethane	< 5. ug/l	5.	350400000N
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000N
Carbon Tetrachloride	< 5. ug/l	5.	350600000N
Bromodichloromethane	< 5. ug/l	5.	350800000N
1,1,2,2-Tetrachloroethane	< 5. ug/l	5.	352300000N
1,2-Dichloropropane	< 5. ug/l	5.	350900000N
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000N
Trichloroethene	< 5. ug/l	5.	351100000N
Dibromochloromethane	< 5. ug/l	5.	351200000N
1,1,2-Trichloroethane	< 5. ug/l	5.	351300000N
Benzene	< 5. ug/l	5.	351500000N
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000N
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000N
Bromoform	< 5. ug/l	5.	351800000N
Tetrachloroethene	< 5. ug/l	5.	352200000N
Toluene	< 5. ug/l	5.	352400000N
Chlorobenzene	< 5. ug/l	5.	352500000N
Ethylbenzene	< 5. ug/l	5.	352600000N
Xylene (total)	< 5. ug/l	5.	352900000N

The analysis for GC/MS volatiles was performed by TSS on 12/08/93.  
The method used was EPA SW846 Method 8240A.

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations



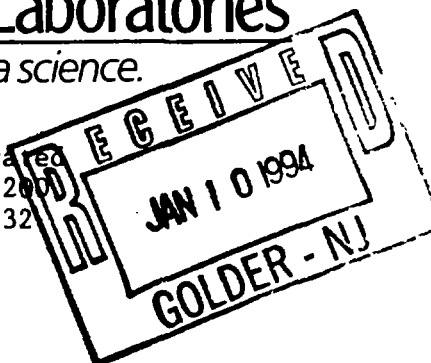


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03:21:02 402840  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



LLI Sample No. WW 2063232  
Date Reported 1/ 7/94  
Date Submitted 12/ 9/93  
Discard Date 1/15/94

Trip Blank Water Sample  
Nease Chemical Superfund Site

Time Collected  
P.O. 933-6158  
Rel.

BLNKK SDG#  
ANALYSIS  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

attached

LIMIT OF  
QUANTITATION

LAB CODE  
150827000P\*

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Client Services at (717) 656-2301  
332 05667 0.00 027000

Respectfully Submitted  
Lancaster Laboratories, Inc.

Ramona V. Layman, Group Leader  
Instrumental Water Chemistry



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2425 New Holland Pike  
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717-656-2301

See reverse side for explanation of symbols and abbreviations



\* 221E  
9 13 E



03:21:03 402840  
ASR000 D 1 14  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063232  
Date Reported 1/ 7/94  
Date Submitted 12/ 9/93  
Discard Date 1/15/94

Trip Blank Water Sample  
Nease Chemical Superfund Site

Time Collected  
P.O. 933-6158  
Rel.

BLNKK SDG#	RESULT	LIMIT OF	LAB CODE
Purgeables (SW846/8240A)	AS RECEIVED	QUANTITATION	
Chloromethane	< 10. ug/l	10.	125800000P
Bromomethane	< 10. ug/l	10.	125700000P
Vinyl Chloride	< 10. ug/l	10.	349200000P
Chloroethane	< 10. ug/l	10.	349400000P
Acrolein	< 100. ug/l	100.	349500000P
Acrylonitrile	< 100. ug/l	100.	349600000P
Methylene Chloride	< 5. ug/l	5.	349700000P
Trichlorofluoromethane	< 5. ug/l	5.	126400000P
1,1-Dichloroethene	< 5. ug/l	5.	350000000P
1,1-Dichloroethane	< 5. ug/l	5.	350100000P
1,2-Dichloroethene (total)	< 5. ug/l	5.	350200000P
Chloroform	< 5. ug/l	5.	350300000P
1,2-Dichloroethane	< 5. ug/l	5.	350400000P
1,1,1-Trichloroethane	< 5. ug/l	5.	350500000P
Carbon Tetrachloride	< 5. ug/l	5.	350600000P
Bromodichloromethane	< 5. ug/l	5.	350800000P
1,1,2,2-Tetrachloroethane	< 5. ug/l	5.	352300000P
1,2-Dichloropropane	< 5. ug/l	5.	350900000P
trans-1,3-Dichloropropene	< 5. ug/l	5.	351000000P
Trichloroethene	< 5. ug/l	5.	351100000P
Dibromochloromethane	< 5. ug/l	5.	351200000P
1,1,2-Trichloroethane	< 5. ug/l	5.	351300000P
Benzene	< 5. ug/l	5.	351500000P
cis-1,3-Dichloropropene	< 5. ug/l	5.	351600000P
2-Chloroethyl Vinyl Ether	< 10. ug/l	10.	364500000P
Bromoform	< 5. ug/l	5.	351800000P
Tetrachloroethene	< 5. ug/l	5.	352200000P
Toluene	< 5. ug/l	5.	352400000P
Chlorobenzene	< 5. ug/l	5.	352500000P
Ethylbenzene	< 5. ug/l	5.	352600000P
Xylene (total)	< 5. ug/l	5.	352900000P

The GC/MS volatile sample was preserved with 1 + 1 HCl to pH < 2. Low recovery of acid labile compounds, such as 2-chloroethyl vinyl ether, is likely to occur.

The analysis for GC/MS volatiles was performed by TSS on 12/13/93.  
The method used was EPA SW846 Method 8240A.

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles



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03:21:03 402840

ASR000 D 1 14

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2063232  
Date Reported 1/ 7/94  
Date Submitted 12/ 9/93  
Discard Date 1/15/94

Trip Blank Water Sample  
Nease Chemical Superfund Site

Time Collected  
P.O. 933-6158  
Rel.

BLNKK SDG#  
Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

LIMIT OF  
QUANTITATION LAB CODE

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Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles



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2425 New Holland Pike  
Lancaster, PA 17601-5994  
717-656-2301

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\* 2216  
9 13 9



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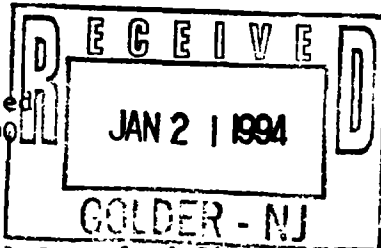
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14:36:03 402466 REP

ASR000 D 1 19

05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232



LLI Sample No. WW 2061646

Date Reported 1/20/94

Date Submitted 12/ 7/93

Discard Date 1/28/94

Trip Blank #2 Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

Time Collected

P.O. 923-6158

Rel.

TB2-- SDG#

ANALYSIS

Purgeables (SW846/8240A)

RESULT  
AS RECEIVED

attached

LIMIT OF  
QUANTITATION

LAB CODE

150827000P\*

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Client Services at (717) 656-2301  
332 05667 0.00 027000

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Lancaster Laboratories, Inc.



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2425 New Holland Pike  
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Ramona V. Layman, Group Leader  
Instrumental Water Chemistry

See reverse side for explanation of symbols and abbreviations







14:36:05 402466 REP  
ASR000 D 1 19  
05667 0

Golder Associates Incorporated  
305 Fellowship Road, Ste. 200  
Mount Laurel, NJ 08054-1232

LLI Sample No. WW 2061646  
Date Reported 1/20/94  
Date Submitted 12/ 7/93  
Discard Date 1/28/94

Trip Blank #2 Water Sample  
R-N Salem/933-6158 Nease Chemical Superfund Site

Time Collected  
P.O. 923-6158  
Rel.

TB2-- SDG#	RESULT		LIMIT OF	
	AS RECEIVED		QUANTITATION	LAB CODE
Purgeables (SW846/8240A)	< 10.	ug/l	10.	125800000P
Chloromethane	< 10.	ug/l	10.	125700000N
Bromomethane	< 10.	ug/l	10.	349200000N
Vinyl Chloride	< 10.	ug/l	10.	349400000N
Chloroethane	< 100.	ug/l	100.	349500000N
Acrolein	< 100.	ug/l	100.	349600000N
Acrylonitrile	< 5.	ug/l	5.	349700000N
Methylene Chloride	< 5.	ug/l	5.	126400000N
Trichlorofluoromethane	< 5.	ug/l	5.	350000000N
1,1-Dichloroethene	< 5.	ug/l	5.	350100000N
1,1-Dichloroethane	< 5.	ug/l	5.	350200000N
1,2-Dichloroethene (total)	< 5.	ug/l	5.	350300000N
Chloroform	< 5.	ug/l	5.	350400000N
1,2-Dichloroethane	< 5.	ug/l	5.	350500000N
1,1,1-Trichloroethane	< 5.	ug/l	5.	350600000N
Carbon Tetrachloride	< 5.	ug/l	5.	350800000N
Bromodichloromethane	< 5.	ug/l	5.	352300000N
1,1,2,2-Tetrachloroethane	< 5.	ug/l	5.	350900000N
1,2-Dichloropropane	< 5.	ug/l	5.	351000000N
trans-1,3-Dichloropropene	< 5.	ug/l	5.	351100000N
Trichloroethene	< 5.	ug/l	5.	351200000N
Dibromochloromethane	< 5.	ug/l	5.	351300000N
1,1,2-Trichloroethane	< 5.	ug/l	5.	351500000N
Benzene	< 5.	ug/l	5.	351600000N
cis-1,3-Dichloropropene	< 10.	ug/l	10.	364500000N
2-Chloroethyl Vinyl Ether	< 5.	ug/l	5.	351800000N
Bromoform	< 5.	ug/l	5.	352200000N
Tetrachloroethene	< 5.	ug/l	5.	352400000N
Toluene	< 5.	ug/l	5.	352500000N
Chlorobenzene	< 5.	ug/l	5.	352600000N
Ethylbenzene	< 5.	ug/l	5.	352900000N
Xylene (total)	< 5.	ug/l	5.	

The analysis for GC/MS volatiles was performed by TSS on 12/09/93.  
The method used was EPA SW846 Method 8240A.

1 COPY TO Golder Associates Incorporated ATTN: Mr. Geoff Forrest

Questions? Contact Environmental  
Client Services at (717) 656-2301

Respectfully Submitted  
Lancaster Laboratories, Inc.



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Lancaster, PA 17601-5994  
717-656-2301

Michele McClarin, B.A.  
Group Leader, GC/MS Volatiles

See reverse side for explanation of symbols and abbreviations



APPENDIX C

MRI LABORATORY RESULTS  
(MPK Narrative Report)

# **MRI REPORT**

---

## **Determination of Mirex, Photomirex, and Kepone For the Pilot Test—Ground Water Treatment Facility**

### **Narrative Report**

**For Ruetgers-Nease Corporation  
201 Struble Road  
State College, PA 16801**

**Attn: Ralph Pearce**

**MRI Project No. 3558**

**January 21, 1994**

**NARRATIVE REPORT FOR MRI PROJECT NO. 3558  
PILOT TEST—GROUND WATER TREATMENT FACILITY**

## **1.0 INTRODUCTION**

This narrative report presents the results from the analysis of nine aqueous samples from the Ruetgers-Nease, Salem, Ohio, site. The analytical method (method) was provided by the Ruetgers-Nease Corporation, which was developed by Enseco, Inc., entitled "Analysis of Mirex, Photomirex, and Kepone in Water Samples Ruetgers-Nease, Salem, Ohio Site," Revision 4.1, July 12, 1992.

Modifications to the method include the incorporation of an internal standard compound,  $^{13}\text{C}$ -decachlorobiphenyl ( $^{13}\text{C}$ -DCB), in all standards and samples. The addition of an internal standard does not alter the procedure for calculating the concentration of mirex, photomirex, and kepone. It does, however, enhance the method by providing a run-by-run measure of instrument performance and allows calculation of the percent recovery of  $^{13}\text{C}$ -mirex (internal quantitation standard [IQS]) for each sample analysis. These modifications have been submitted in a separate delivery to the Ruetgers-Nease Corporation, Salem site (April 21, 1993).

Problems were encountered with the analysis of T-1 Influent samples and are discussed in Section 5.0 Results. Gross interferences in the extracts prevented reliable reporting of MPK.

The following deliverables are included with this shipment:

1. Cover letter
2. Narrative report

## **2.0 SAMPLE RECEIPT AND HANDLING**

Samples were received intact on December 2, 7, and 9, 1993. There were no custody seals on the cooler or the field samples. Table 1 includes a summary of the samples received.

**Table 1. LIST OF SAMPLES RECEIVED AND CORRESPONDING  
MRI LABORATORY IDENTIFICATION CODES**

Field sample No.	MRI identification No.	Date of receipt
T-1 Influent	501	12-2-93
SP-4 Influent to Liquid GAC 2	502	12-2-93
SP-5 Effluent	503	12-2-93
T-1 Influent	532	12-7-93
T-1 Influent/FD	533	12-7-93
SP-5 Effluent	534	12-7-93
SP-5 Effluent MS	534MS	12-7-93
SP-5 Effluent MSD	534MSD	12-7-93
T-1 Influent (Surge Tank) <sup>a</sup>	535	12-9-93
SP-4 Influent to Liquid GAC2	536	12-9-93
SP-5 Effluent	537	12-9-93

<sup>a</sup> "Surge tank" was listed on the chain of custody.

### 3.0 SAMPLE PREPARATION

Sample preparation was performed according to the method, except for the final concentration step. Instead of using a micro-Snyder Column for concentrating the extract from 5 mL to the final volume, the extract was concentrated from 3 mL to the final volume using nitrogen blowdown. All samples were extracted within the method-specified holding times. Table 2 lists the concentration of the internal quantitation standard <sup>13</sup>C<sub>8</sub>-mirex, matrix spiking solution utilized, and the respective volumes used to spike 1 L of sample. Two laboratory blanks were extracted with the samples.

**Table 2. SPIKING SOLUTION CONCENTRATIONS**

Compound	Concentration (µg/mL)	Spiking volume (mL)
<sup>13</sup> C-Mirex	1.00	0.10
Mirex	1.03	0.10
Photomirex	1.08	0.10
Kepone	5.05	0.10

The initial GC/MS analysis of the sample extracts showed gross interferences for all of the T-1 Influent samples. MRI intends to investigate a sulfuric acid wash technique to further reduce the organic interferences. The acid wash technique is discussed further in the Results section of this report.

## 4.0 ANALYSIS

### 4.1 GC/NCIMS ANALYSIS

Sample analysis was performed on a Finnigan-MAT 4000 (upgraded to a 4500) quadrupole mass spectrometer operated in the negative chemical ionization mode (NCI). The GC oven temperature program rate was modified because of kepone peak tailing. Those parameters are summarized in Table 3. Calibration curve standard concentrations are summarized in Table 4. Standard no. 2551-44-3 was used for the continuing calibration standard.

**Table 3. GC/MS SYSTEM CONDITIONS**

Mass Spectrometer:	Finnigan-MAT 4000 (4500 equivalent)
Ion Source Temperature:	250°C
Transfer Line Temperature:	280°C
Gas Chromatograph:	Hewlett-Packard 5980A
Column:	30 m DB-5, 0.25 mm ID
GC Temperature Program:	Initial hold at 120°C for 2 min Programmed from 120° to 250°C at 10°C/min Programmed from 250° to 310°C at 20°C/min Final hold at 310°C for 5 minutes
Injection Port Temperature:	280°C
Carrier Gas:	Helium
Carrier Flow Rate:	1 mL/min
Chemical Ionization Reagent:	Methane

**Table 4. CALIBRATION CURVE ANALYTE CONCENTRATIONS (µg/L)**

Identifier:	2551-44-1	2551-44-2	2551-44-3	2551-44-4	2551-44-5
<b>Recovery</b>					
<b>Internal Standard</b>					
<sup>13</sup> C <sub>10</sub> -PCB	258	258	258	258	258
<b>Internal Quantitation</b>					
<b>Standard</b>					
<sup>13</sup> C-Mirex	1,000	1,000	1,000	1,000	1,000
<b>Target Compounds</b>					
Mirex	206	412	1,030	2,060	4,120
Photomirex	216	432	1,080	2,160	4,320
Kepone	1,010	2,020	4,040	6,060	8,080

## 4.2 DATA REDUCTION

Quantitation and confirmation ion areas characteristic for each of the parameters were electronically transferred from a GC/MS data system into a PC computer data base, where sample results were calculated according to the equations provided in the Method. For samples where the analytes were not detected, the reporting limits of the method were used.

## 5.0 RESULTS

Analysis results for mirex, photomirex, and kepone in the samples and related laboratory blank are shown in Table 5. Matrix interferences affected the T-1 Influent samples. These interferences resulted in an increase in retention time, poor peak shape, and a loss of sensitivity. In addition, the matrix affected the overall performance of the column on subsequent samples. Two T-1 Influent samples, 501 and 532, had a loss of sensitivity that resulted in low internal standard area, which did not meet the method objective (50% to 150% of daily standard area). A subsequent reanalysis confirmed the sensitivity drop. Sample 501 had a drastic effect on the column, forcing analyses to stop for 2 days while the injectors and GC column were regenerated. Sample 533, T-1 INF/FD, is reported as free of analytes; however, there are unresolved peaks that would mask the presence of analytes at or above the method detection limit. Of the T-1 samples, only 535, T-1 INF (Surge Tank), gave acceptable chromatography.

Figure 1 includes the RICs (Reconstructed Ion Chromatograms) resulting from the analysis of a laboratory blank (a) and a T-1 Influent sample (b) which illustrate the severe interferences in the T-1 sample.

The T-1 Influent samples can be cleaned up with an acid wash and reanalyzed in an attempt to get more consistent results. This can be accomplished by using one-half of the sample extract, adding an equal volume of concentrated  $H_2SO_4$ , shaking, and allowing the phases to settle. The toluene phase is then injected into the GC/MS.

Matrix spike and matrix spike duplicate results are given in Table 6. Kepone recoveries were high but consistent. Kepone daily calibration has to meet only a signal-to-noise ratio criterion; therefore, the apparent high recovery is not considered a problem.

**Table 5. RESULTS FOR MIREX, PHOTOMIREX, AND KEPONE IN AQUEOUS SAMPLES**  
(Concentrations reported as µg/L)

MS filename	Field sample ID	Laboratory identification	Mirex 0.00544 <sup>a</sup>	Photomirex 0.0474 <sup>a</sup>	Kepone 0.132 <sup>a</sup>	<sup>13</sup> C- Mirex recovery (%)
3558L16W13	T-1 INF	501	0.365 x	0.0331 J,z,k	ND	72
3558L16W3	SP-4 INF LIQ GA	502	0.00309 x,J	ND	ND	92
3558L16W4	SP-5 EFF	503	0.00115 J,x	ND	ND	70
3558L16W5	T-1 INF	532	0.0443 J,y,x	ND	ND	155
3558L16W6	T-1 INF/FD	533	ND	ND	ND	163
3558L16W7	SP-5 EFF	534	0.00891 x,y	ND	ND	117
3558L16W8	SP-5 EFF MS	534MS	0.134	0.108	0.881	83
3558L16W9	SP-5 EFF/MSD	534MSD	0.147	0.142	0.960	59
3558L16W10	T-1 INF Surge Tank	535	0.583	0.0479	0.0564 J,z,k	66
3558L16W11	SP-4 INF LIG GA	536	0.112	0.0147 J	0.0299 J,y,z,k	67
3558L16W12	SP-5 EFF	537	0.0695	0.00732 J,z,k	ND	75
3558L16W1	LAB BLANK 12-6-93	LAB BLANK	0.0022 J	ND	ND	134
3558L16W2	LAB BLANK 12-8-93	LAB BLANK	0.00107 J,y,z,k	ND	ND	87

<sup>a</sup> Method-specified reporting limits for extract volume of 0.2 mL.

J = Result is detected below the reporting limit and is an estimated concentration.

z = Presence of the compound is strongly indicated, but the ion abundance ratio criteria are not met for the quantitation cluster ions.

x = Presence of the compound is strongly indicated, but the ion abundance ratio criteria are not met for the confirmation cluster ions.

y = Presence of the compound is strongly indicated, but not all specified ions in the clusters are present.

k = Quantitation done using confirmation cluster ions.

**Table 6. MATRIX SPIKE RESULTS**  
(% Recovery)

Sample	Spike level (µg/L)		
	Mirex 0.103	Photomirex 0.108	Kepone 0.505
534MS	121	100	175
534MSD	126	131	190
Average recovery	124	116	183
RPD	4	27	8



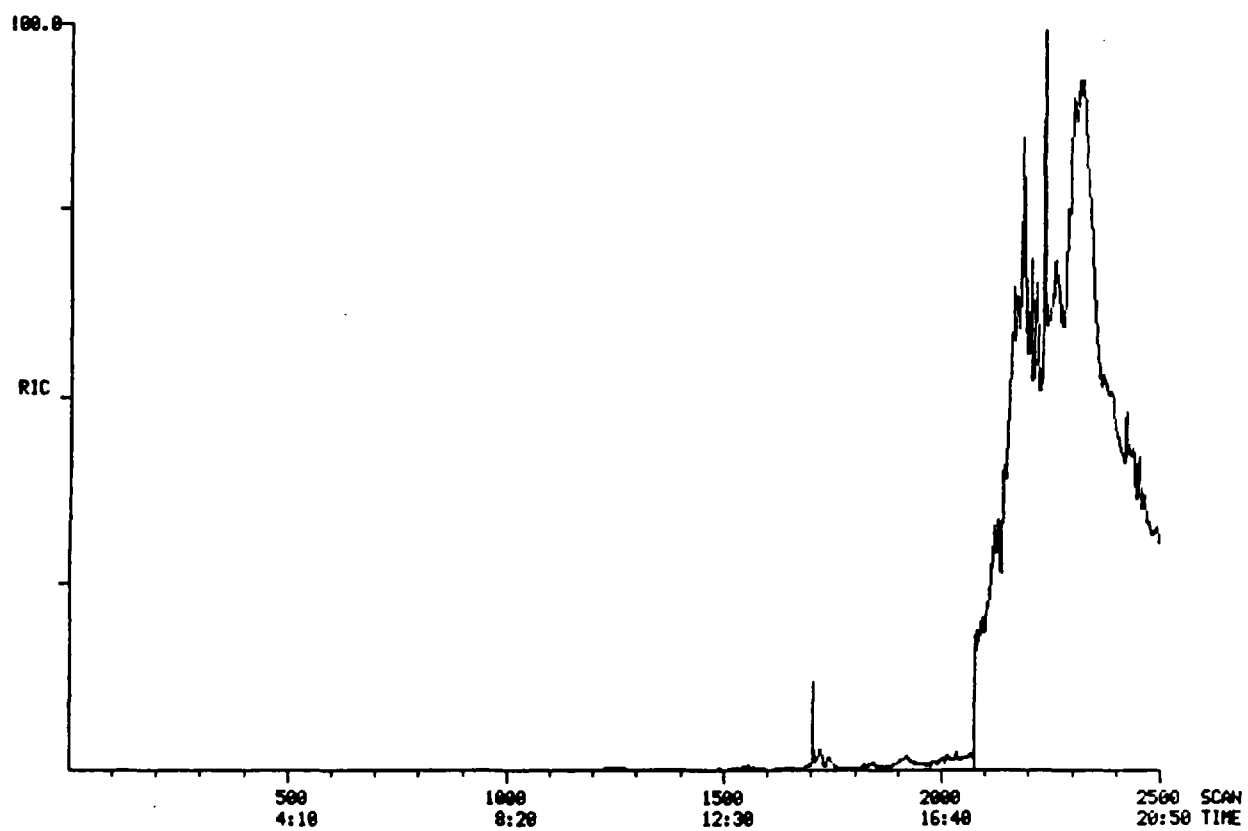
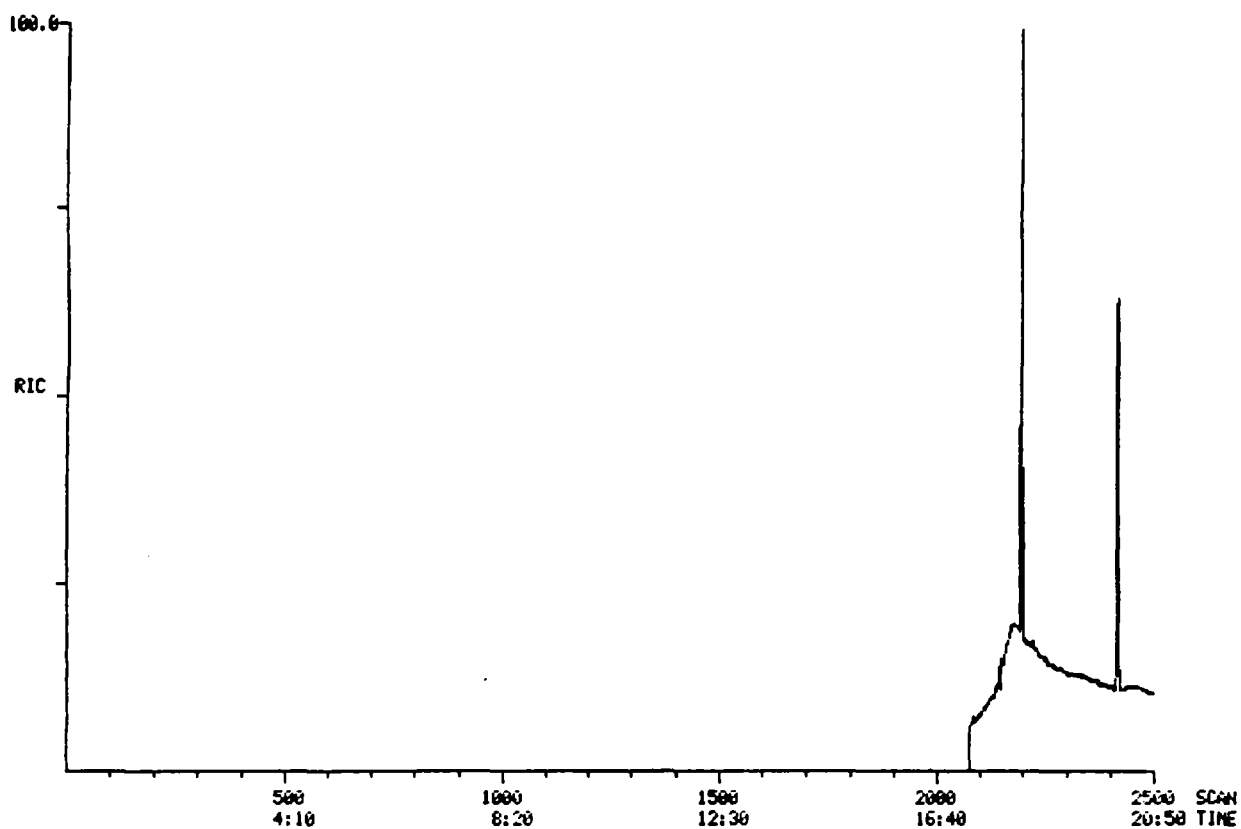


Figure 1  
6

**APPENDIX D**  
**RMC LABORATORY RESULTS**  
**(Aquatic Toxicity)**



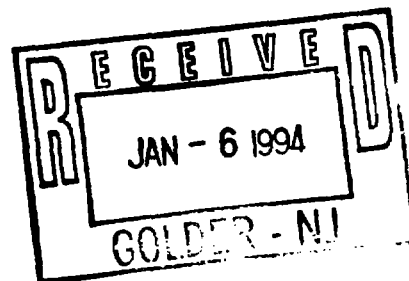
RMC ENVIRONMENTAL SERVICES, Inc.

3450 Schuylkill Road  
Spring City, PA 19475

215•948•4700  
215•948•4752 FAX

5 January 1994

Joseph E. Cavanagh  
Golder Associates, Inc.  
305 Fellowship Road, Suite 200  
Mt. Laurel, NJ 08054



SUBJECT: Aquatic Toxicity Testing  
Ruetgers-Nease Chemical Corporation, Salem, Ohio  
RMC Project No. 04772

Dear Mr. Cavanagh:

Enclosed you will find one unbound copy of a report detailing the results of aquatic toxicity testing conducted at the Ruetgers-Nease Chemical Corporation in Salem, Ohio.

Two 48-hour Acute Definitive Toxicity tests were initiated on 2 December and 9 December 1993. Testing was conducted on Ceriodaphnia dubia and Pimephales promelas.

Should you have any questions please do not hesitate to contact me or Phyllis Young, Client Services/Aquatic Biologist. We thank you for your business and look forward to working with you in the future.

Sincerely,

Mark E. Messersmith  
Aquatic Toxicology Laboratory Manager

bsm  
Enclosure

cc: P. Young, RMC (w/o enc.)



**Results of Effluent Monitoring  
Conducted on Samples Collected  
30 November and 1 December 1993  
and  
7 and 8 December 1993**

**RMC Project No. 04772/02**

**Prepared for:  
Golder Associates, Inc.**

**Prepared by:  
RMC Environmental Services, Inc.**

**January 1994**

**Results of Effluent Monitoring  
Conducted on Samples Collected  
30 November and 1 December 1993  
and  
7 and 8 December 1993**

**Prepared for:**

**Golder Associates, Inc.  
305 Fellowship Road, Suite 200  
Mt. Laurel, New Jersey 08054**

**Prepared by:**

**RMC Environmental Services, Inc.  
3450 Schuylkill Road  
Spring City, Pennsylvania 19475  
(610) 948-4700**

**RMC Project No. 04772/02**

**January 1994**



*Printed on recycled paper*



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## INTRODUCTION



## INTRODUCTION

Effluent monitoring was conducted 2 through 4 December and 9 through 11 December 1993 at RMC Environmental Services, Inc. (RMC), Aquatic Toxicology Laboratory on two samples of final effluent discharge from Ruetgers-Neuse Chemical Corporation in Salem, Ohio. The objective of the bioassay tests was to determine the 48 hour acute toxicity of the final effluent on a representative freshwater vertebrate species, fathead minnow (Pimephales promelas), and a representative freshwater invertebrate species, Ceriodaphnia dubia. The toxicity is expressed as the  $LC_{50}$ , the effluent concentration that is found to be toxic to 50 percent of the test organisms.

Biomonitoring Report Forms summarizing the bioassay test methods and results are located in Appendix B.

## TEST DESCRIPTION

## TEST DESCRIPTION

### BIOASSAY

Four static renewal definitive acute toxicity tests were initiated at 1200 on 2 December 1993 and at 1115 on 9 December 1993. The effluent samples consisted of a 24 hour composite collected using an ISCO sampler.

The tests consisted of a control and a series of effluent dilutions to which the fathead minnow (Pimephales promelas) and the cladoceran, Ceriodaphnia dubia, were exposed for 48 hours. For the fathead minnow, duplicate effluent dilutions, based on a geometric series, and controls (0% effluent) were set up using the effluent sample. The minnows were tested in 500 ml disposable plastic beakers, and the volume of test solution in each test chamber was 250 ml. For the C. dubia, a series was set up using the effluent sample, with four replicates for each effluent dilution. The C. dubia were tested in 30 ml disposable plastic beakers, and the volume of test solution in each test chamber was 15 ml. The test temperature for both of the organisms was maintained at  $25 \pm 2$  C.

Ten test organisms were placed in each test vessel in the fathead minnow test for a total of twenty test organisms for each dilution. Five test organisms were placed in each test vessel for the C. dubia for a total of twenty test organisms per dilution. The number and percentage of organisms in each vessel, including controls, that died or showed signs of stress were recorded at the end of each 24-hour interval. The test vessels were renewed with freshly mixed effluent dilutions at the end of the first 24 hours.

The bioassays were conducted in accordance with the procedures described in Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms, Fourth Edition, EPA-600/4-90-027.

**EFFLUENT AND DILUTION WATER DESCRIPTION**

## EFFLUENT AND DILUTION WATER DESCRIPTION

An automatic sampler was used to collect a 24 hour composite sample of final effluent discharge from the treatment plant. The sampler was set up by Golder Associates, Inc. personnel on 30 November and 7 December, with aliquots collected every hour. The sample was shipped overnight to RMC via Federal Express. Chain-of-Custody forms accompanied the sample.

The effluent sample was colorless and odorless. The sample was filtered through a 64  $\mu$  mesh sieve before use in the preparation of test dilutions for the bioassay.

Dilute mineral water (20 percent DMW) was prepared according to procedures outlined in EPA/600/4-89/001 and was used as dilution/control water for both the fathead minnow and the C. dubia acute toxicity tests. Distilled water was decanted through a deionizing column (Barnstead mixed bed) and diluted in a ratio of 2 parts Perrier water to 8 parts deionized water. The DMW was aerated for at least 24 hours prior to use as either acclimation water, dilution water, or control water.

## **TEST ORGANISMS**

## **WATER QUALITY ANALYSES**

## TEST ORGANISMS

### FATHEAD MINNOW PIMEPHALES PROMELAS

Fathead minnows used in testing were obtained from Aquatic Research Organisms, a commercial laboratory located in Hampton, New Hampshire. The minnows were placed in a cubitainer and shipped overnight to RMC. They were acclimated to laboratory environmental conditions for twenty-four hours before test initiation. The minnows were fed freshly hatched Artemia nauplii during holding. No minnow mortality was observed during the acclimation period. The minnows were approximately thirteen days old at test initiation.

### FRESHWATER CLADOCERAN CERIODAPHNIA DUBIA

Stock cultures of the freshwater cladoceran, Ceriodaphnia dubia, were originally obtained from EPA Ohio and have been cultured at RMC for approximately two and one-half years. Mass cultures of these organisms are routinely maintained in 1 liter glass beakers containing 800 mls of 20 percent DMW culture media. The beakers are maintained in a temperature controlled environment at  $25 \pm 1$  C. One week prior to test initiation, individual C. dubia cultures were initiated by transferring adults containing eggs from the mass culture to individual 30 ml plastic cups containing 15 ml of 20 percent DMW. These animals were transferred to fresh DMW every other day and fed 0.1 ml of unicellular green alga (Selenastrum capricornutum) concentrate and 0.1 ml of yeast/CEROPHYLL/trout chow (YCT) suspension at the time of transfer.

On the day prior to test initiation, all newly released neonates were removed from each individual culture. The broods released during the following 24-hr period were pooled, and these less than 24 hour organisms were used to initiate the acute tests. Since the neonates used in the test were released into DMW, they were fully acclimated to the dilution water used for this test.

## WATER QUALITY ANALYSES

The following water quality parameters were monitored in one replicate of each bioassay test dilution at the start of the test and at each 24 hour interval: Temperature, dissolved oxygen, pH, and conductivity. Dissolved oxygen was measured with a YSI Model 51 meter, and temperature, pH, and conductivity by a Corning deluxe field system meter. Alkalinity and hardness were determined in the control and 100 percent effluent at the beginning of the test using a HACH digital titrator.

## TEST RESULTS



## TEST RESULTS

### BIOASSAY

All test data are reported in tables at the end of this report. These data include the observed mortality as well as all physical/chemical measurements.

In the first test, 2 through 4 December, fathead minnow mortality was observed after 24 hours of exposure. Five percent mortality was recorded in 12.5% and 50% effluent, and 15 percent mortality was recorded in 100% effluent. After 48 hours of exposure, 30 percent mortality was recorded in 100% effluent. Five percent control mortality was recorded after 24 hours of exposure. No additional control mortality was observed for the test duration.

In the second test, 9 through 11 December, fathead minnow mortality was also observed after 24 hours of exposure. Five percent mortality was observed in 50% effluent, and 20 percent mortality was recorded in 100% effluent. After 48 hours of exposure, 10 percent mortality was recorded in 50% effluent and 35 percent mortality was recorded in 100% effluent. No control mortality was recorded throughout the test period.

In the third test, 2 through 4 December, *C. dubia* mortality was observed after 24 hours of exposure. Ten percent mortality was recorded in 100% effluent. After 48 hours of exposure, 5 percent mortality was recorded in 50% effluent, and 15 percent mortality was recorded in 100% effluent. No control mortality was recorded throughout the test period.

In the fourth test, 9 through 11 December, *C. dubia* mortality was 5 percent in 50% effluent and 15 percent in 100% effluent at the end of 24 hours. After 48 hours of exposure, 10 percent mortality was recorded in 50% effluent, and 20 percent mortality was recorded in 100% effluent. No control mortality was recorded throughout the test period.

LC<sub>50</sub> (lethal concentration) values and corresponding 95% confidence limits were calculated using computer software designed by the United States Environmental Protection Agency. LC<sub>50</sub> is the concentration of effluent that kills half the organisms in a test population per unit time. 95% confidence limits indicate that there is 95% probability that the parameter being estimated lies within these values.

<u>Parameter</u>	<u>12/2/93 - 12/4/93</u>		<u>12/9/93 - 12/11/93</u>	
	<u>Minnow</u>	<u>C. dubia</u>	<u>Minnow</u>	<u>C. dubia</u>
24 hour LC <sub>50</sub> value	> 100% effluent	> 100% effluent	> 100% effluent	> 100% effluent
95% confidence limits	100/+infinity	100/+infinity	100/+infinity	100/+infinity
48 hour LC <sub>50</sub>	> 100% effluent	> 100% effluent	> 100% effluent	> 100% effluent
95% confidence limits	50/+infinity	100/+infinity	50/+infinity	100/+infinity
TU <sub>n</sub> (100 ÷ LC <sub>50</sub> )	1.0	1.0	1.0	1.0

Table 1. Fathead Minnow Mortality

CLIENT: Golder Associates, Inc.: Ruetgers-Nease Site  
 TEST: 48 hour Acute Toxicity Definitive Test  
 DATE: 2 through 4 December and 9 through 11 December 1993

Test Date	% Effluent Dilution	Number of Organisms	Cumulative number of organisms affected at		% Mortality*
			24-h	48-h	
12/2 - 12/4	0	20	1	1	5
	6.25	20	0	0	0
	12.5	20	1	1	5
	25	20	0	0	0
	50	20	1	1	5
	100	20	3	6	30
12/9 - 12/11	0	20	0	0	0
	6.25	20	0	0	0
	12.5	20	0	0	0
	25	20	0	0	0
	50	20	1	2	10
	100	20	4	7	35

\*Cumulative Percent Mortality at 48 hours.



Table 2. Ceriodaphnia dubia Mortality

CLIENT: Golder Associates, Inc.: Ruetgers-Nease Site  
 TEST: 48 hour Acute Toxicity Definitive Test  
 DATE: 2 through 4 December and 9 through 11 December 1993

Test Date	% Effluent Dilution	Number of Organisms	Cumulative number of organisms affected at		% Mortality*
			24-h	48-h	
12/2 - 12/4	0	20	0	0	0
	6.25	20	0	0	0
	12.5	20	0	0	0
	25	20	0	0	0
	50	20	0	1	5
	100	20	2	3	15
12/9 - 12/11	0	20	0	0	0
	6.25	20	0	0	0
	12.5	20	0	0	0
	25	20	0	0	0
	50	20	1	2	10
	100	20	3	4	20

\*Cumulative Percent Mortality at 48 hours.



Table 3. Physical/Chemical Measurements - Fathead Minnow

CLIENT: Golder Associates, Inc.: Ruetgers-Nease Site  
 TEST: 48 hour Acute Toxicity Definitive Test  
 DATE: 2 through 4 December and 9 through 11 December 1993  
 DATA: Temperature (C), Dissolved oxygen (mg/L), pH, Specific conductance (micromhos/cm), Alkalinity (mg/L CaCO<sub>3</sub>), and Hardness (mg/L CaCO<sub>3</sub>).

Time	2 through 4 December 1993						9 through 11 December 1993					
	0	6.25	12.5	25	50	100	0	6.25	12.5	25	50	100
0 hour												
Temp	24.5	24.7	24.7	24.7	24.7	24.7	24.5	24.5	24.6	24.9	25.1	25.3
D.O.	8.0	8.0	8.0	7.9	7.9	7.8	8.0	8.0	8.0	7.9	7.8	7.7
pH	7.91	7.90	7.86	7.83	7.79	7.72	7.85	7.84	7.82	7.81	7.77	7.69
Conductivity	193.1	229	278	363	521	841	198.3	239	276	373	530	856
Alkalinity	48	N/A	N/A	N/A	N/A	32	46	N/A	N/A	N/A	N/A	36
Hardness	79	N/A	N/A	N/A	N/A	919	76	N/A	N/A	N/A	N/A	439
24 hour												
Temp	24.3	24.3	24.3	24.3	24.2	24.2	24.7	24.7	24.7	24.7	24.7	24.7
D.O.	7.6	7.6	7.6	7.4	7.4	7.2	7.5	7.6	7.4	7.2	7.1	7.0
pH	7.90	7.87	7.83	7.81	7.81	7.73	7.81	7.80	7.78	7.78	7.73	7.61
Conductivity	201	241	287	370	531	859	210	245	288	382	541	863
48 hour												
Temp	24.4	24.4	24.5	24.4	24.6	24.4	24.6	24.6	24.7	24.7	24.8	24.7
D.O.	7.5	7.6	7.5	7.4	7.3	7.2	7.4	7.4	7.4	7.2	7.1	7.0
pH	7.87	7.85	7.82	7.79	7.77	7.71	7.79	7.78	7.77	7.76	7.71	7.59
Conductivity	202	241	285	374	533	863	215	246	290	385	543	878



Table 4. Physical/Chemical Measurements - Ceriodaphnia dubia

CLIENT: Golder Associates, Inc.: Ruetgers-Nease Site  
 TEST: 48 hour Acute Toxicity Definitive Test  
 DATE: 2 through 4 December and 9 through 11 December 1993  
 DATA: Temperature (C), Dissolved oxygen (mg/L), pH, Specific conductance (micromhos/cm), Alkalinity (mg/L CaCO<sub>3</sub>), and Hardness (mg/L CaCO<sub>3</sub>).

Time	2 through 4 December 1993						9 through 11 December 1993					
	0	6.25	12.5	25	50	100	0	6.25	12.5	25	50	100
0 hour												
Temp	25.1	25.1	25.1	24.9	24.8	24.7	24.9	24.9	25.0	25.2	25.2	25.3
D.O.	8.1	8.0	8.0	8.0	7.9	7.8	8.0	8.0	8.0	8.0	7.9	7.7
pH	8.11	8.06	7.98	7.94	7.75	7.72	7.93	7.91	7.89	7.87	7.81	7.69
Conductivity	195.2	234	282	369	527	841	201	242	283	381	537	856
Alkalinity	51	N/A	N/A	N/A	N/A	32	49	N/A	N/A	N/A	N/A	36
Hardness	78	N/A	N/A	N/A	N/A	919	75	N/A	N/A	N/A	N/A	439
24 hour												
Temp	25.2	25.3	25.3	25.2	25.2	25.2	25.0	25.0	25.0	25.0	25.0	25.0
D.O.	8.0	7.9	7.9	7.9	7.8	7.6	7.9	7.9	7.9	7.9	7.8	7.6
pH	8.07	7.99	7.95	7.90	7.76	7.68	7.91	7.89	7.87	7.82	7.78	7.65
Conductivity	206	238	285	373	534	850	216	252	285	390	545	860
48 hour												
Temp	25.0	24.9	25.1	25.0	24.9	24.9	25.0	25.0	25.1	25.0	25.1	25.1
D.O.	7.9	7.9	7.9	7.9	7.8	7.6	7.9	7.9	7.9	7.9	7.8	7.6
pH	8.01	7.97	7.95	7.89	7.74	7.70	7.89	7.85	7.83	7.79	7.75	7.65
Conductivity	205	237	287	376	537	852	219	252	289	389	549	865



## **APPENDIX A**



ENVIRONMENTAL  
SERVICES

RMC ENVIRONMENTAL SERVICES, Inc.

3450 Schuylkill Road  
Spring City, PA 19475

215-948-4700  
215-948-4752 FAX

Biomonitoring Report Form - Acute Bioassays

Permit No.: N/A

Facility Name: Ruetgers-Nease Chemical Corporation, Inc.

RMC Project No.: 04772/02

Facility Location: Salem, Ohio 44460

Laboratory/Investigator: RMC Environmental Services, Inc.

Mark Messersmith / Jennifer Mokriski

Bioassay Specifications:

Effluent Type (e.g., final, pre-chlorination): Final

Test Type: Static ☐ Renewal (6 hr) ☐ Renewal (24 hr) ☒ Flow through ☐

Test Duration (hours): 24 ☐ 48 ☒ 96 ☐ Other (specify) ☐

Test Organism: Fathead Minnow Pimephales promelas  
(common name) (scientific name)

Test end point: LC<sub>50</sub> ☒ EC<sub>50</sub> ☐ Other (specify) ☐

Summary of Final Results:

Test Starting Date: 2 December 1993 9 December 1993 Completion Date: 4 December 1993 11 December 1993

LC<sub>50</sub>/EC<sub>50</sub> (% effluent): >100% 95% Confidence Interval: 50  
30% - 2 December to  
Percent mortality in 100% effluent: 35% - 9 December +infinity

Quality Control Summary:

Control Mortality: 5 percent - 2 December  
0 percent - 9 December

Temperature maintained with +/-2 deg. C of test temperature? Yes ☒ No ☐

Dissolved Oxygen levels always greater than 40% saturation? Yes ☒ No ☐

Loading factor for all exposure chambers less than or equal to maximum allowed for the test type and temperature? Yes ☒ No ☐

Two or more concentrations exhibit a trend deviation? Yes ☐ No ☒

Certification:

Accuracy of report certified by: Mark E Messersmith 11/5/94  
Laboratory Manager Date



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**Test Organism Data:**

Test organism source:

RMC culture \_\_\_\_\_ Commercial Hatchery (specify) Aquatic Research Organisms

Test organism acclimation to dilution water:

Initial number of organisms 120

Total acclimation period \_\_\_\_\_ day(s) 24 hour(s)

Acclimation period to 100 percent dilution water  
at the specified test temperature: N/A hour(s)

Number of mortalities 48 hours prior to test: 0

Test organism age at start of test: 9 day(s) \_\_\_\_\_ hour(s)

**Test Design:**

Number of effluent test concentrations (minimum of 5) 5

Number of replicates/test concentration: 2

Number of test organisms/replicate: 10

Volume of liquid in test chambers: 250 ml

Flow-through bioassay exchange rate: N/A (cycles/day)

**Effluent Sampling:**

Plant sampling location: Final

Treatment plant retention time (hours): N/A

Type of sample: Grab \_\_\_\_\_ 6 hr composite \_\_\_\_\_ 24 hr composite X Continuous feed \_\_\_\_\_

Sample Collection:

Beginning date: 30 November 1993

Ending date: 7 December 1993

Ending date: 1 December 1993

8 December 1993

Beginning time: --

Ending time: --

If composite sample, number of grab samples in composite: 48

Intervals between grab samples (minutes): 30

Maximum sample holding time (hours): 36

Testing location: On site \_\_\_\_\_ Remote Laboratory X



**Dilution Water:**

Effluent receiving water: N/A

Dilution water source: 20% Demineralized Perrier Water

If a substitute dilution water was used,  
had its use been approved by PA DER? N/A Yes        No       

Collection location: N/A

Collection date(s): N/A

**Bioassay Results:**

	24 hour	48 hour	72 hour	96 hour
LC <sub>50</sub> /EC <sub>50</sub> (% effluent):	2 Dec. - >100%	>100%		
	9 Dec. - >100%	>100%		

Calculation Method: Binomial Test

Does the data satisfy the statistical assumptions  
of the specified calculation method? Yes X No       

Is the calculated LC<sub>50</sub>/EC<sub>50</sub> valid according  
to the specifications of the method used? Yes X No       

**Miscellaneous:**

Was test organism stress observed during the test? Yes        No X

If yes, specify concentrations and abnormalities       

Were any exposure chambers aerated during the test? Yes        No X

If yes, specify concentrations and duration



ENVIRONMENTAL  
SERVICES

RMC ENVIRONMENTAL SERVICES, Inc.

3450 Schuykill Road  
Spring City, PA 19475

215-948-4700  
215-948-4752 FAX

Biomonitoring Report Form - Acute Bioassays

Permit No.: N/A

Facility Name: Rutgers-Nease Chemical Corporation, Inc.

RMC Project No.: 04772/02

Facility Location: Salem, Ohio 44460

Laboratory/Investigator: RMC Environmental Services, Inc.

Mark Messersmith / Jennifer Mokriski

Bioassay Specifications:

Effluent Type (e.g., final, pre-chlorination): Final

Test Type: Static ☐ Renewal (6 hr) ☐ Renewal (24 hr) ☒ Flow through ☐

Test Duration (hours): 24 ☐ 48 ☒ 96 ☐ Other (specify) ☐

Test Organism: Water Flea Ceriodaphnia dubia  
(common name) (scientific name)

Test end point: LC<sub>50</sub> ☒ EC<sub>50</sub> ☐ Other (specify) ☐

Summary of Final Results:

Test Starting Date: 2 December 1993 9 December 1993 Completion Date: 4 December 1993 11 December 1993

LC<sub>50</sub>/EC<sub>50</sub> (% effluent): >100% 95% Confidence Interval: 100  
15% - 2 December to  
Percent mortality in 100% effluent: 20% - 9 December +infinity

Quality Control Summary:

Control Mortality: 0 percent

Temperature maintained with +/-2 deg. C of test temperature? Yes ☒ No ☐

Dissolved Oxygen levels always greater than 40% saturation? Yes ☒ No ☐

Loading factor for all exposure chambers less than or equal to maximum allowed for the test type and temperature? Yes ☒ No ☐

Two or more concentrations exhibit a trend deviation? Yes ☐ No ☒

Certification:

Accuracy of report certified by: Mark E. Messersmith 11/5/94  
Laboratory Manager Date



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**Test Organism Data:**

Test organism source:

RMC culture ☒ Commercial Hatchery (specify) \_\_\_\_\_

Test organism acclimation to dilution water:

Initial number of organisms 120

Total acclimation period N/A day(s) \_\_\_\_\_ hour(s)

Acclimation period to 100 percent dilution water  
at the specified test temperature: N/A hour(s)

Number of mortalities 48 hours prior to test: 0

Test organism age at start of test: \_\_\_\_\_ day(s) <24 hour(s)

**Test Design:**

Number of effluent test concentrations (minimum of 5) 5

Number of replicates/test concentration: 4

Number of test organisms/replicate: 5

Volume of liquid in test chambers: 15 ml

Flow-through bioassay exchange rate: N/A (cycles/day)

**Effluent Sampling:**

Plant sampling location: Final

Treatment plant retention time (hours): N/A

Type of sample: Grab \_\_\_\_\_ 6 hr composite \_\_\_\_\_ 24 hr composite ☒ Continuous feed \_\_\_\_\_

Sample Collection:

Beginning date: 30 November 1993 Beginning time: ---

Ending date: 7 December 1993 Ending time: ---

1 December 1993

8 December 1993

If composite sample, number of grab samples in composite: 48

Intervals between grab samples (minutes): 30

Maximum sample holding time (hours): 36

Testing location: On site \_\_\_\_\_ Remote Laboratory ☒



**Dilution Water:**

Effluent receiving water: N/A

Dilution water source: 20% Demineralized Perrier Water

If a substitute dilution water was used,  
had its use been approved by PA DER? N/A Yes        No       

Collection location: N/A

Collection date(s): N/A

**Bioassay Results:**

	24 hour	48 hour	72 hour	96 hour
LC <sub>50</sub> /EC <sub>50</sub> (% effluent):	2 Dec. <u>- &gt;100%</u>	<u>&gt;100%</u>	<u>      </u>	<u>      </u>
	9 Dec. <u>- &gt;100%</u>	<u>&gt;100%</u>		

Calculation Method: Binomial Test

Does the data satisfy the statistical assumptions  
of the specified calculation method? Yes X No       

Is the calculated LC<sub>50</sub>/EC<sub>50</sub> valid according  
to the specifications of the method used? Yes X No       

**Miscellaneous:**

Was test organism stress observed during the test? Yes        No X

If yes, specify concentrations and abnormalities       

Were any exposure chambers aerated during the test? Yes        No X

If yes, specify concentrations and duration       



## APPENDIX B

# RMC Analytics

A DIVISION OF  
RMC ENVIRONMENTAL SERVICES, INC.

88 Robinson Street  
Pottstown, Pa. 19464  
(215) 327-4850

Client: GOLDER VIP #: \_\_\_\_\_  
Address: 305 FELLOWSHIP RD  
MT LAUREL NJ 08054  
Phone: 609 273 1110  
Samplers: JOE CAMWASH  
Job No.: 933-16158

Lab Contact: \_\_\_\_\_  
Sales Order No.: \_\_\_\_\_  
P.O. Number: \_\_\_\_\_

RMC USE ONLY

Turnaround Time Normal [ ] Rush [ ]  
Sample Return to Client [ ]  
Disposal Disposal by Lab [ ]

CHAIN OF CUSTODY

No. Container/Size		Analysis Requested										ORGANICS					INORGANICS				
RMC only Lab ID	Sample Identification	Matrix Code *	Sample Date	Sample Time	VOA	BNA	Pest/ PCB	Herb									Metals	Cu	NH3	Wet Chem	
	T.P. EFFLUENT	WW	12/1/93	13:45																	
	Chronic Toxicity																				
	C. daphnia																				
	FATHEAD MINNOW																				

## Potential Hazard Identification:

Non-Hazard [ ] Flammable [ ] Unknown [ ]  
Skin-irritant [ ] Poison [ ]

## QA/QC Reporting Requirements (Circle one)

None Standard Tier II CLP  
Other (specify): \_\_\_\_\_

## \* Matrix Codes:

S - soil WW - waste water  
SE - sediment PW - potable water  
SO - solid SW - surface water  
WS - solid waste GW - ground water  
DS - drum solids DL - drum liquids  
SL - sludge ST - stormwater  
O - oil A - air  
WI - wipe F - fish  
BI - biological X - other

Relinquished By:	Received By:	Time:	Date:	Relinquished By:	Received By:	Time:	Date:
<u>Joe Camwash</u>	<u>Mike Moresco</u>	<u>16:00</u>	<u>12/1/93</u>				

Special Instructions: \_\_\_\_\_

## RMC Use Only

### Samples were:

1. Shipped or Hand-delivered 2. Chilled or Ambient 3. Received broken/leaking 4. Properly preserved 5. Received within holding times  
Notes: Notes: Yes No Yes No Yes No

### COC Tape Was:

1. Present on outer package 2. Unbroken on outer package 3. Present on sample 4. Unbroken on sample 5. Discrepancies between sample labels and COC record?  
Yes No Yes No Yes No Yes No Yes No

CHAIN OF CUSTODY

